89 (abell.)

Chicago Botanic Garden
2002

1.

Pleurothallis

Orchideae

I	Tfln.	255	(coll.	76)
II	"	250	"	115
III	"	190	"	81
IV	"	152	"	71
V	"	186	"	137
VI	"	116	"	54
VII	"	127	"	86
VIII	"	237	"	153
IX	"	245	"	157
X	"	290	"	114
XI	"	301	"	111
XII	"	369	"	149

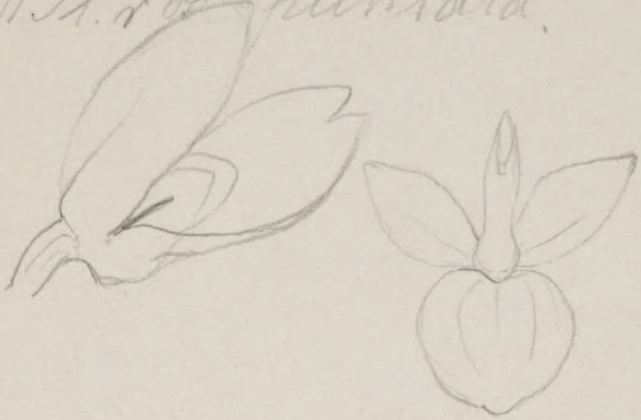
Tfln. 2718 (coll. 1304)

ca. [2700 (coll. 1300)]

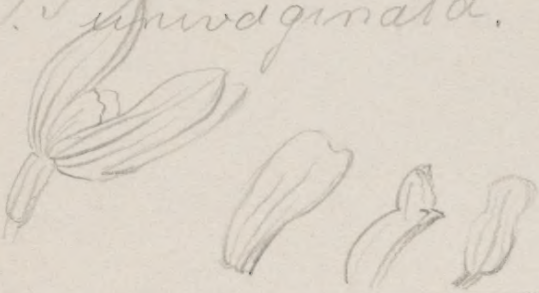
1 P. laevigata.

5 P. cassidis

11. Pl. rosa puntata.



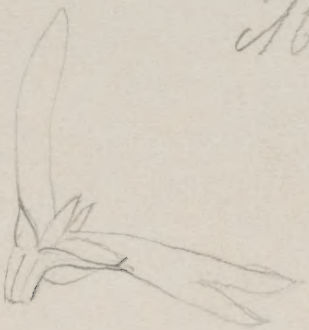
13. P. univaginata.



19. P. Jamieson

Sepals fleshy

Mandon 40



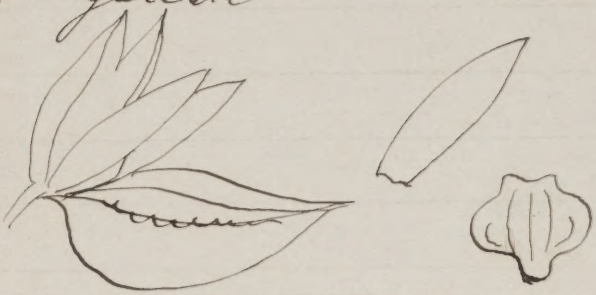
Pollen?

x Callus ovatus

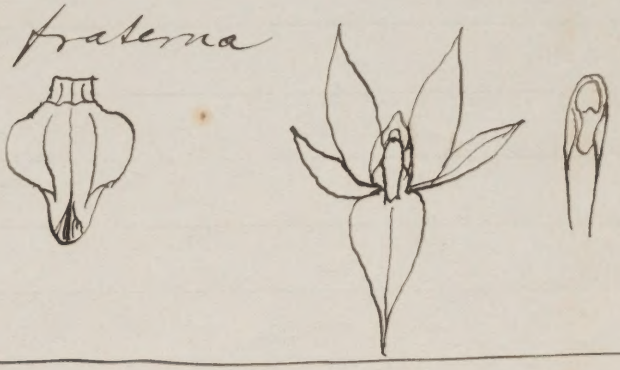
Pleurothallis

Pleurothallis

Pl. Weddeliana Rf. Pl. Man Hen III 24.
N. 41
N. 40. aus d. Verwandschaft von Grobyi
" Mandersii Rf. Hen III. 24.
" laevigata herb. L. Diagn. sehr gut. Blt 3 mm lang.
B. " galeata



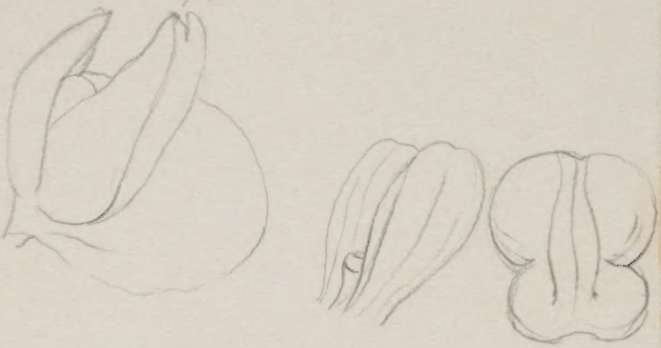
4 Pl. fraterna



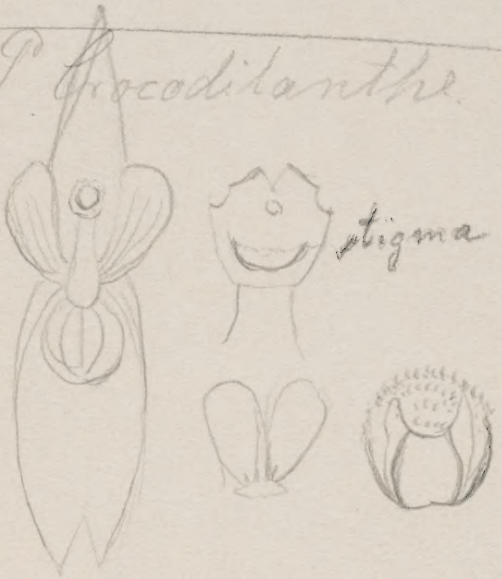
6.

Pl. palmiformis

7 P diffusa.



9 P crocodilanthe.



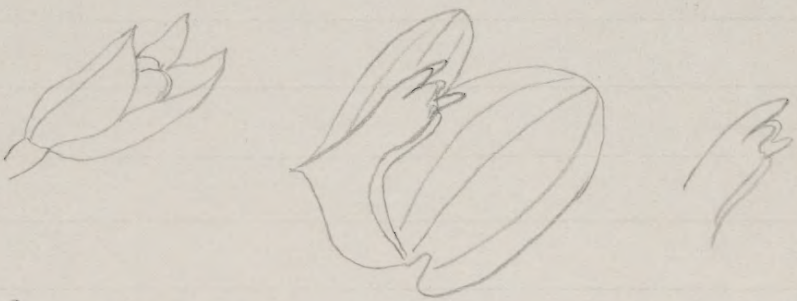
8.

P. expansa.

10.

P. pediolaris = cauliflora

11.



Pl. roseopunctata.

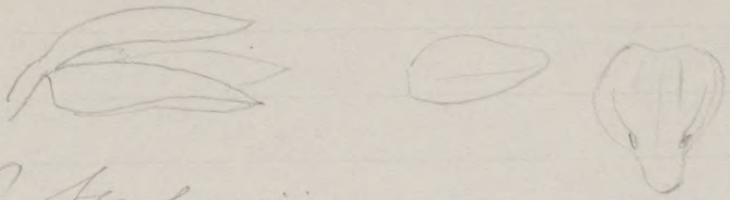
12.

gelida

15

P. fons florum.

16.



P. Hartwegii

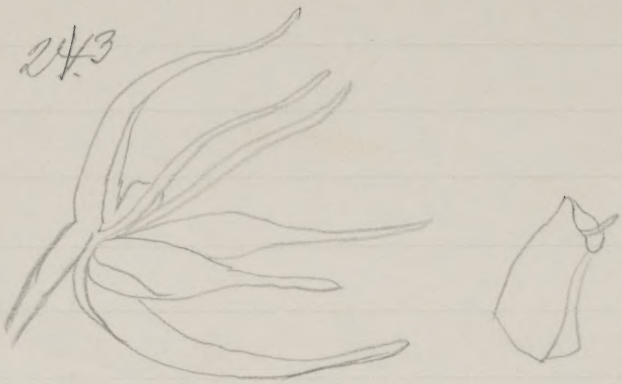
20.

P. velatiper

20.

P. velatiper

24.3



P. pedunculata.

24.

P. laurifolia

28

semipellucida
hegedensis

hirsuta

pilifera

scabrilin-
gue

Petalen zu breit!!

55

P. harpophylla

57

P. prolifera

60

Pl. casapensis

62

Pl. malachantha

63

Pl. [illegible]

56

pectinata

chamensis

rubro viridis.

floribunda.

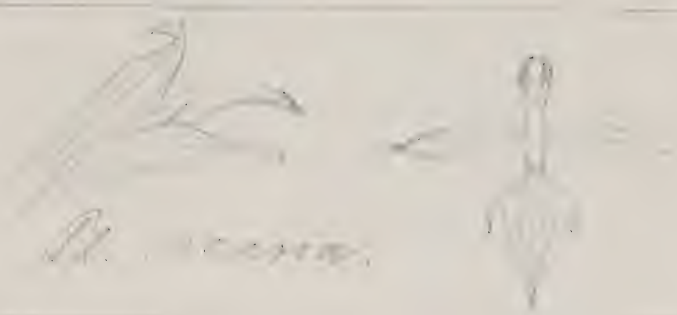
fragilis

rivampleva

66.

68.

69



73

74

76.

79.

82

83.

81

Pl. affinis

Crotophallus

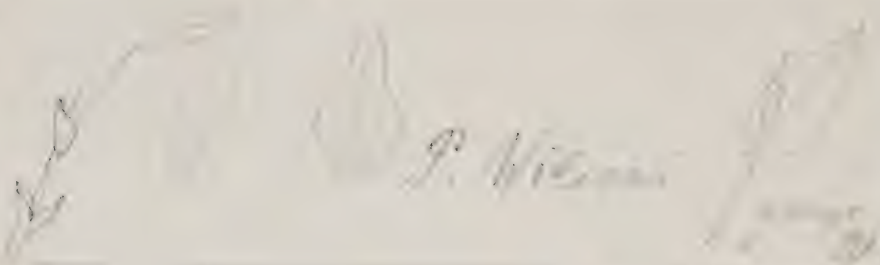
86.

Pl. [illegible]

88.

apiculata

90.



P. [illegible]

91.

[illegible]

92.

Pl. [illegible]

ventricosa

bidentata

angustifolia

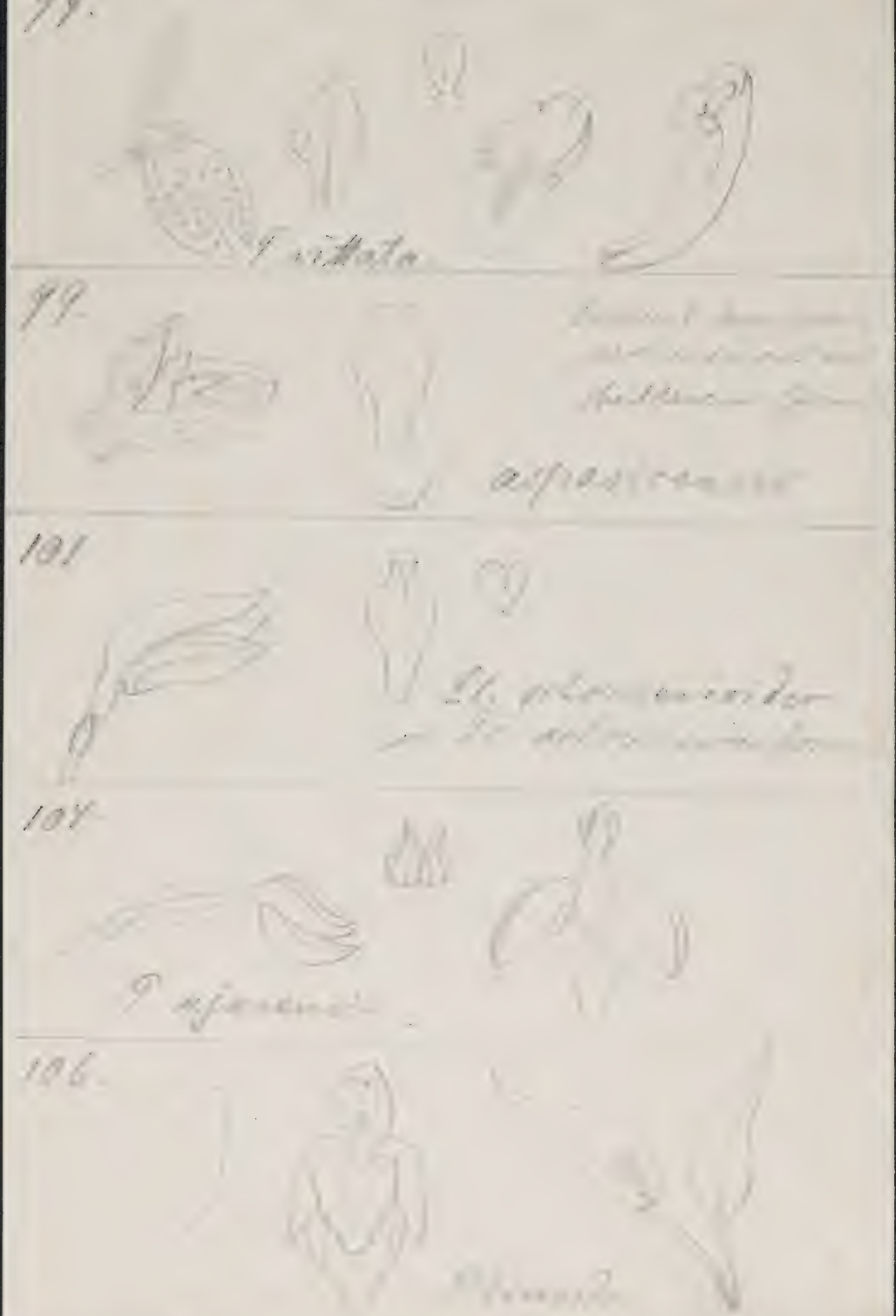
fenestrata

95.

foetens

100

rigidifolia.



105
Pl. tubulosa

109

[illegible] Anemone
Alt. vesul.

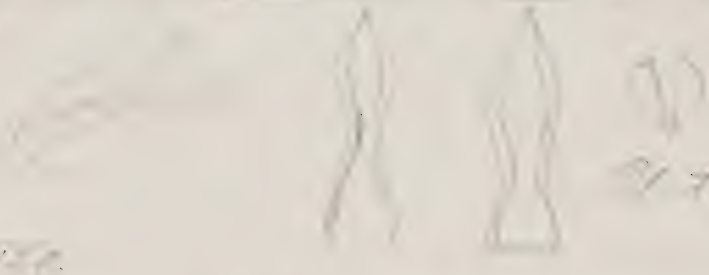
112

P. [illegible]

117.

P. [illegible]

118.



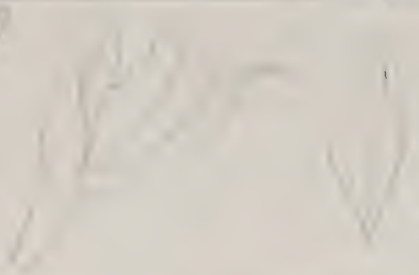
P. [illegible]

119 [illegible]

P. [illegible]

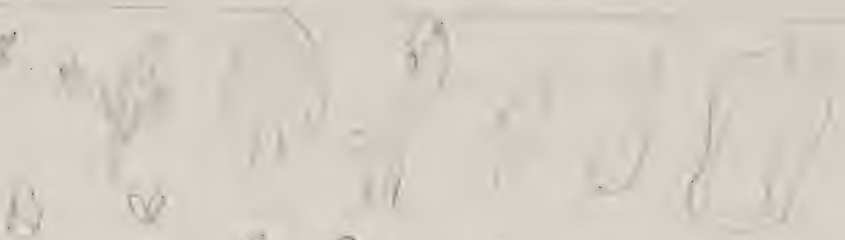
Pl. spinosilla

127



Pl. capillaris

128

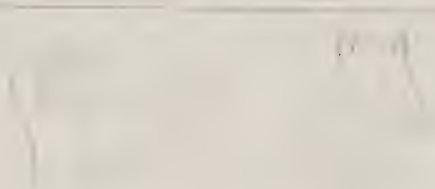


Pl. Dorei.

129.

Pl. inaequalis

133



Pl. Smithiana

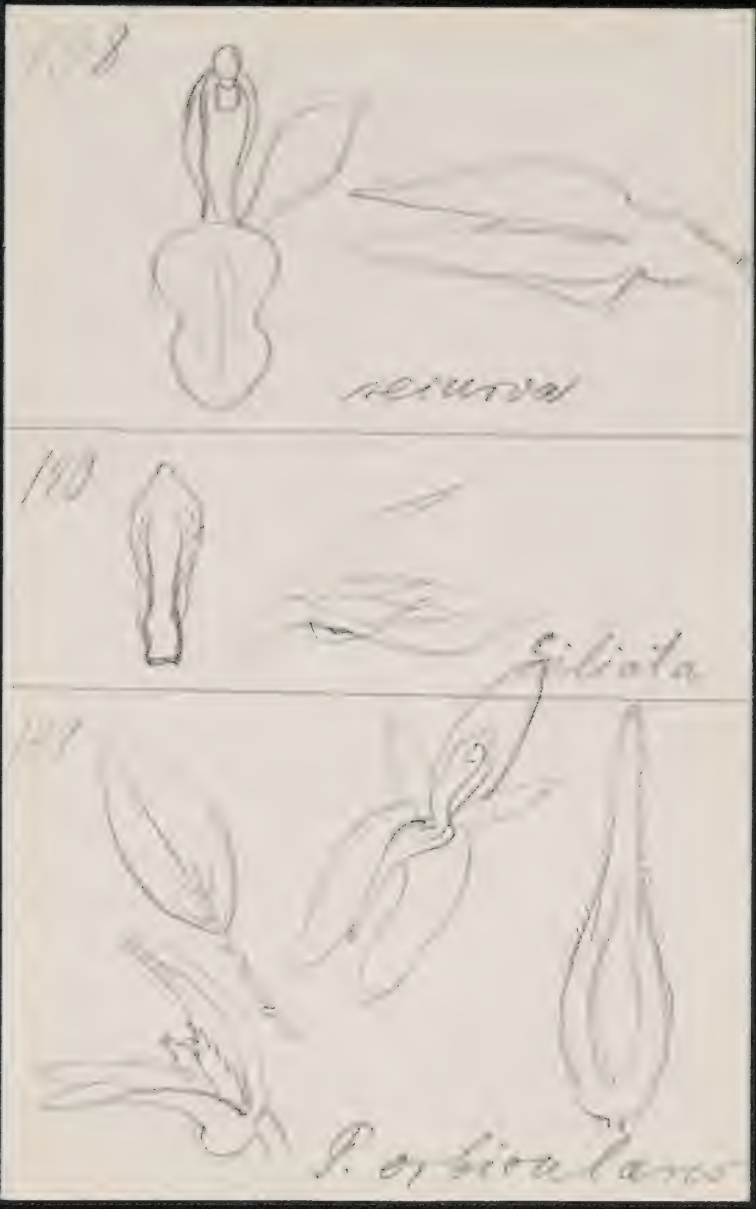
12.

obovata

auriculata

143.

P. longirostris.


recurva
filiata
P. orbicularis

165

erinacea Rf

166

triennata

17[illegible]

P. velaticaulis

160.

Pl. meridiana Pf

162.

Pl. gigantea

163

Pl. ligulata

164.

Pl. parvipetalla

168 P. ligulata

171.

Lolinata

172.

P. crassipes

173.

P. Trichillaria

174.

restrepioides.

177

saltatoria

176.

P. reabreta

178.

P. antemifera.

179.

P. [illegible]

192.

P. [illegible]

183 P. rubens.

184.

Pl. Foveata

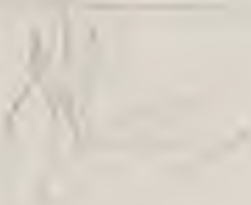
185.

Longicaulis

187.

Pl. Trella

188.



Pl. [illegible]

191.

Fresh

117

pachyglossa

172

dura.

193.

P. Arbuscula.

194.

P. [illegible]

200.

P. [illegible]

200 b

P. [illegible]

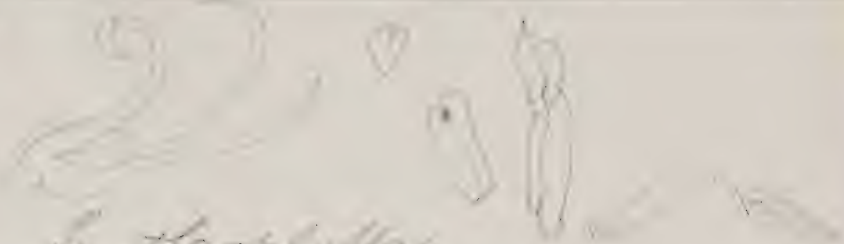
199 ramulosa

[illegible] aurea

203.

P. [illegible]

204.



P. Herophyllae

205.

P. [illegible]

~~209~~ 211.

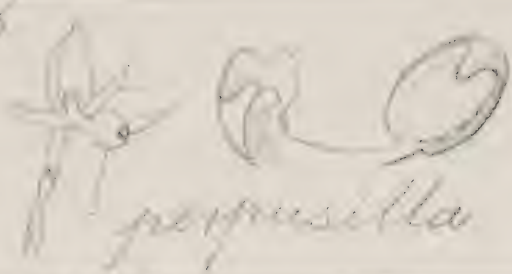
P. [illegible]

serrifera

prostrata

213 triptera antha

216

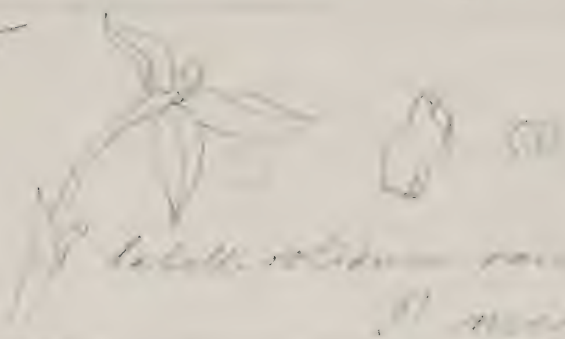


perpusilla

218 declinis

214

215



217

219

225.

227. [illegible]

232 [illegible]

229.

P. pandorifera

231.

P. [illegible]

233.

P. [illegible]

234.

P. longifolia

238.

P. [illegible]

235 delicatula

237. crenata

242

243

244

246.

248 [illegible]

253 [illegible]

251.

Pl. revista

252.

Pl. trifida

255.

Pl. [illegible]

256.

Pl. uniflora

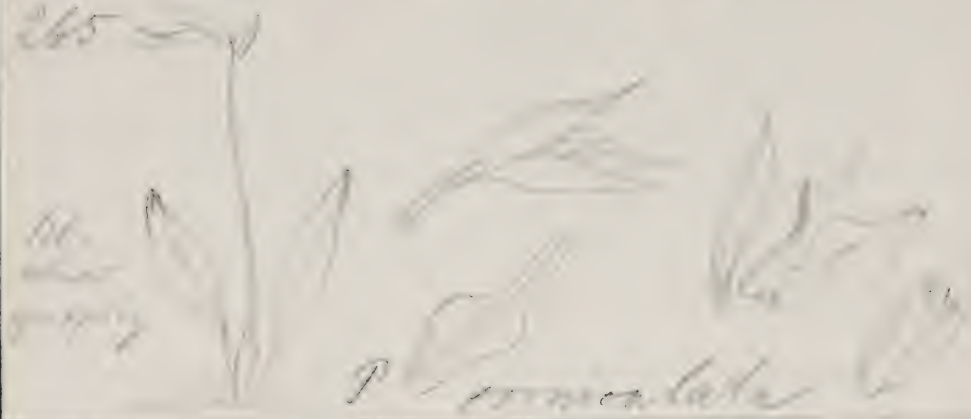
267

P. parviflora

263.

P. [illegible]

265



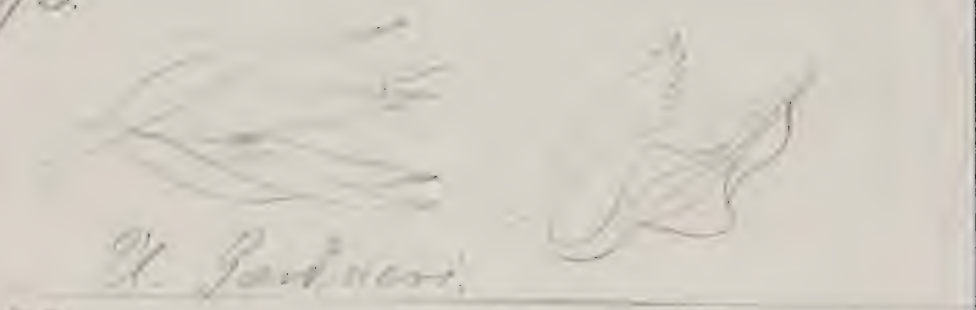
P. [illegible]

266. [illegible] 265 [illegible]

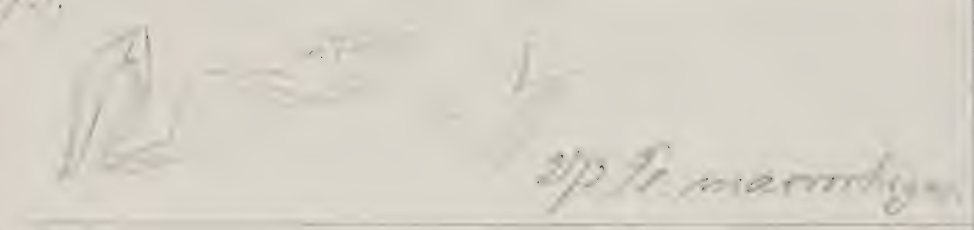
[illegible]

269.

272.



273.



274.

264 striata

276

Pl. [illegible]

277

Pl. [illegible]

278

Pl. [illegible]

280

Pl. [illegible]

N. 96 Hook. Journ. of Bot. III tab 9. p. 308.

Flowers dull yellow

Pl. aphthosa. Lindl. Bot. Reg 1838 misc. fol. orch. No. 9

Pleurothallis peduncularis Hook. l. c.

Mexico. Guatemala.

Lin. Herzog 8 Okt. 2 p. 103.

Tab. 41.

Rhynchopera pedunculata. Kl.

Rhynchopera. Kl. Perigonii foliola exteriora patentissima, aequalia. Lateralia connata, supremum apice recurvatum, interiora conformia. Labellum liberum, columnae subparallelum, integrum, cum columnae pede articulatum, conforme. Columna cylindrica, basi producta, aptera. Anthera unilocularis opercularis. Pollinia 2, subsphaerica, integra, disjuncta, breviter caudiculata.

Herba americana habitu Pleurothallidis.

R. pedunculata. Radiculis filiformibus simplicibus, sordide albidis, radiato torto fulcitis; caulo monophyllo proprio basi infra medium vaginis fuscis aridis, membranaceis hypsellioaribus obtusis, inferioris vestita. folio ellipsoideo, carnoso coriaceo, longitudinaliter canaliculato, subaveneo, apice acuto aut minute bifido, caulo subduplo breviore, floribus racemosis, pallido-subvirescentibus purpureo vittatis; spathe cuculloso compressa, membranacea apice bifida; bracteis pallido-membranaceis vaginantibus, aridis.

236.

M. Saul, J. N. Kitchlith

[illegible] Sculp.

Rich. & Gal. Orch. Mexic.
Pl. 2. 3.

2. Pleurothallis alata Rich & Gal.

Richard & Gal. Orch. Mexic.
Pl. 2. 2.

1. Pleurothallis spathulata Rich & Gal.

Ruiz & Pav. Fl. Peruv. Mex. tab. I. 2.

Pleurothallis violacea. Ruiz & Pav.

38.

Presl. Symbolae IV 57

(Aronia phalangiana Presl)

Pleurothallis Matthaeus Lindl.

Gard. Chron. 1881 II p. 784

Pleurothallis Scapha Gard.
Nat. Größe
Rbch. f.
Gard. Chron. 1874. II. 162.

7131

M.S. del. J.N. Fitch lith.

Vincent Brooks, Day & Son, Lith.

J. Pearce & Co. Chicago

Pleurothallis scapha Rchb. f.

M S del J N Fitch lith

Vincent Brooks Day & Son Imp

L Reeve & Co London

Pleurothallis insignis Lodd

Bot. Mag. tab. 6936.

Pleurothallis insignis. Rolfe, Gard. Chron.
Ser. III. vol. 1. p. 477

Venezuela?

Bot. Mag. tab. 6886.

Pleurothallis Barberiana. Rchb. f.

Bot. Mag. tab. 7094.

Pleurothallis ornata. Rbd. f.
in Wittenb. Garten Ztg 1862. p. 106
Oliver Nature XXXVI. (1887) p. 303. & Not. B.

Annals of
nat. history
Bd II 1839 t. XV.

Pleurothallis aristata. Hoon
British Guiana.

Bot. Mag. 3261

Pleurothallis perolifera. (Lol.) Herbert
Lio. (Botofogo)

57

Bot. Reg. 1298

Pleurothallis prolifera Herbert

Curtis. Bot. Mag. 4142

Pleurothallis bicarinata. Lindl.
Brasilien.

Dubois Reymondia Kurz.

D. lanceolata Kurz. *D. platyphylla Kurz.*

Bot. Mag 3897

Pleurothallis ruscifolia
Lindl.
Mexico.

Bot. Mag. 3030.

Stenorhachis saurocephalus. Lodd.

Brasilien.

Bot. Reg. 1968

Neurochilus aurocephala. Lodd.

68.

Richard & Galeotti Orch. Mexic.
Pl. 2. 1.

(Pleurothr. aurea Rich. & Gal.)

Pleurothr. chrysantha Lindl.

133.

Richard & Galeotti, tab. I.

Pleurothallis disticha Ric. & Gal.

Bot. Reg. 1797

Pleurothallis Grobyi. Barem
Demerara.

Bot. Mag. 3682.

Pleurothallis Grobyi. Bateman.
Rio de Janeiro.

Bot. Reg 1825.

Pleurothallis picta. Lindl.

Demerara.

Reise Kaiser Maxim
t. 104.

IV Oleurothallis transversola Rf
V Restrepia Micrsii Rf

1 3

Rhynchopera. Klotzsch

Allopleres

Streptocarpus

Cyrtandraceae

~~Dichotrichium~~ Tecoma

Drymonia

~~Primulina~~

~~Episcia~~ Beloria

~~Chirita~~. ~~Hebeka~~

~~Didymocarpus~~ ~~Baea~~

Haemacoria ~~Lasiopsis~~

~~Conandron~~ Ourisia

Lysionotus Rhabdothamnus

Hypocyrta.

~~Acrotynanthus~~

Columnea.

Dichotrichium
Haberlea
Primulina
Sarmienta
Baca
Saintpaulia
Lysionotus
Rhabdothamnus

Esmeralda

Rehmannia

Epistia.

Columnea

2. Stelis

Lind

118

110

113.

119

121

123

125

pugiunculi

118

deuriflora

126

triseta

114 — pollinia pedis arcuata

[illegible]

[illegible]

[illegible]

115.

[illegible]

128.

[illegible]

130.

[illegible]

122 [illegible]

124 [illegible]

116 [illegible]

1.ª microrrhala.

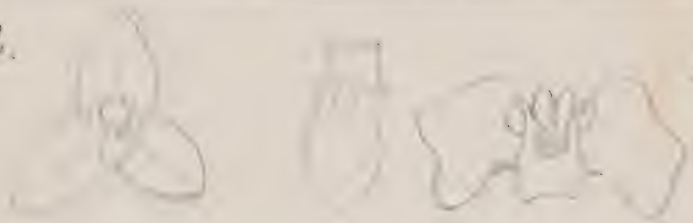
1.ª bicornis

Stelis

99

101.

102.



103.

104.

105

89

oblongifolia

90.

aurifera

92

chachapoyis

96.

villata

97

sphaerophila

109 [illegible]

[illegible]

120 [illegible]

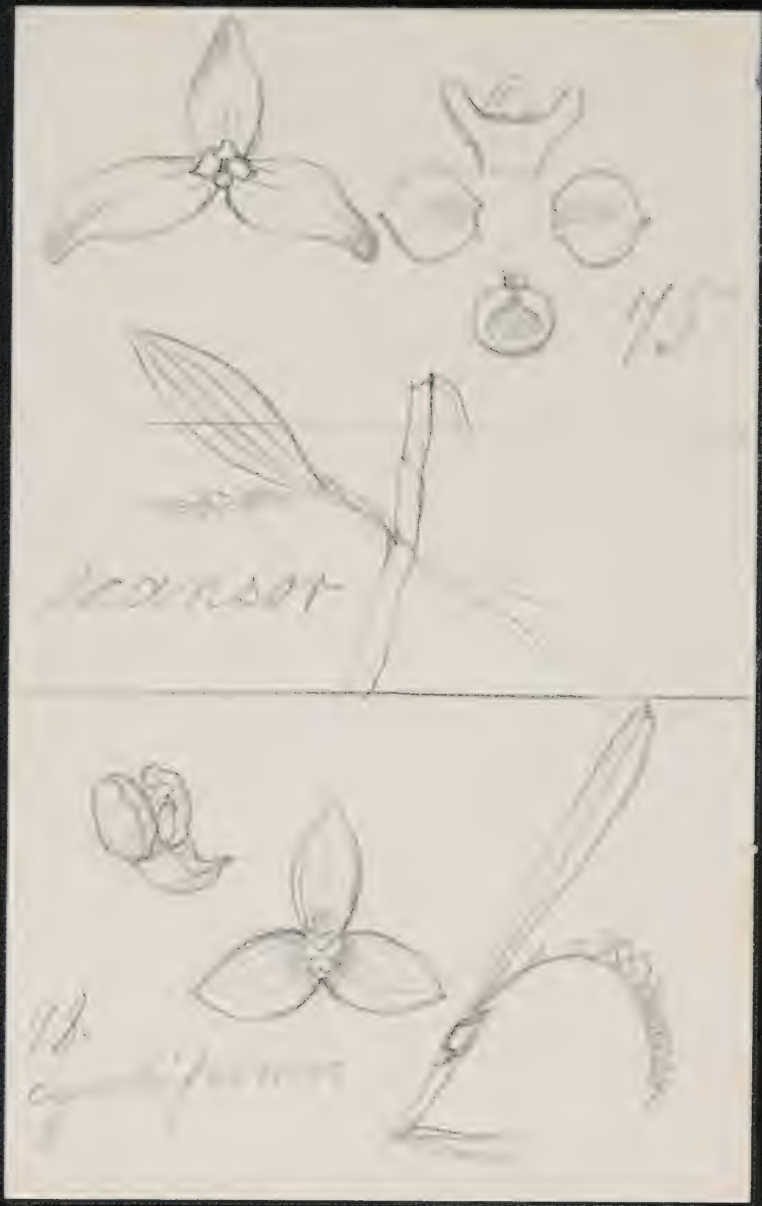
C. Ander.

Bi aprica

Herosifolia

Hemoranthia.

100 kanala



74.

76.

77.

79

85

80.

83

84.

64.

64. [illegible]

65.

[illegible]

68.

alba.

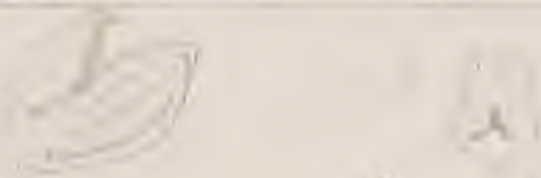
71.

[illegible]

72.

[illegible]

73.



[illegible]

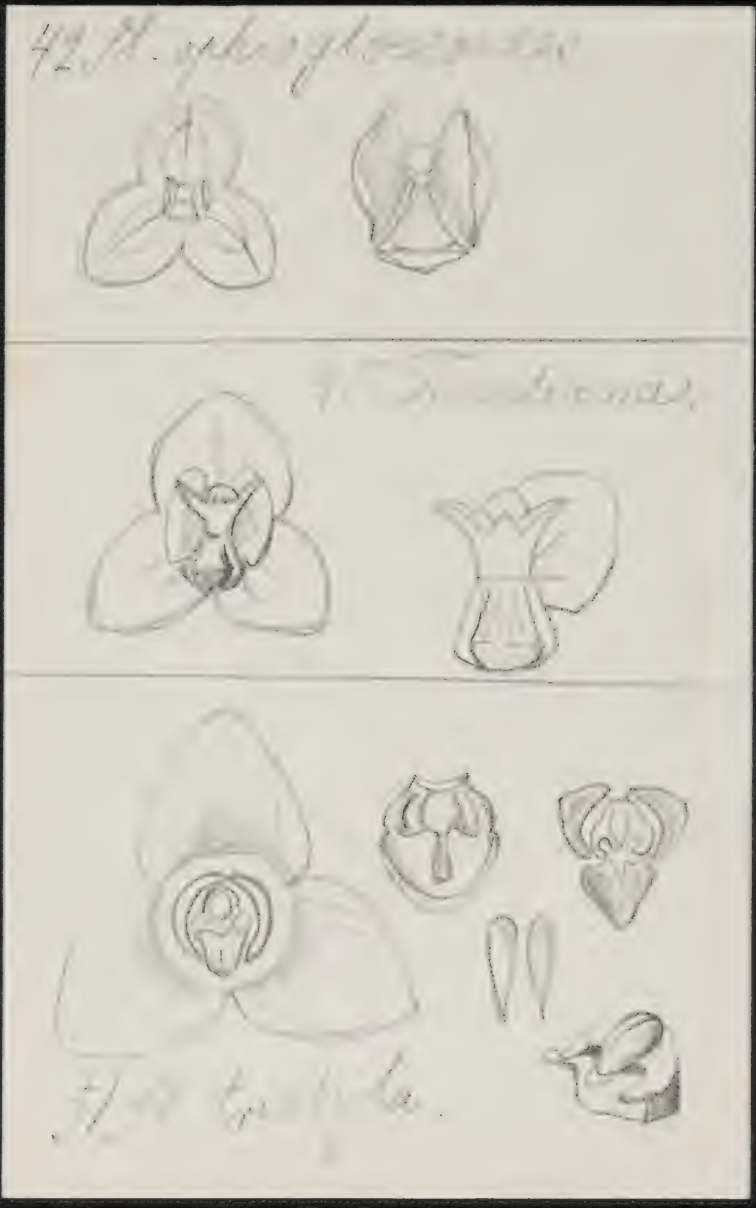
60 H discolor

61 Jamfesoni

66

barbicollis

69. polychaeta



50

Lutea

54

[illegible]

57

[illegible]

58

[illegible]

61.

[illegible]

62

[illegible]

40.

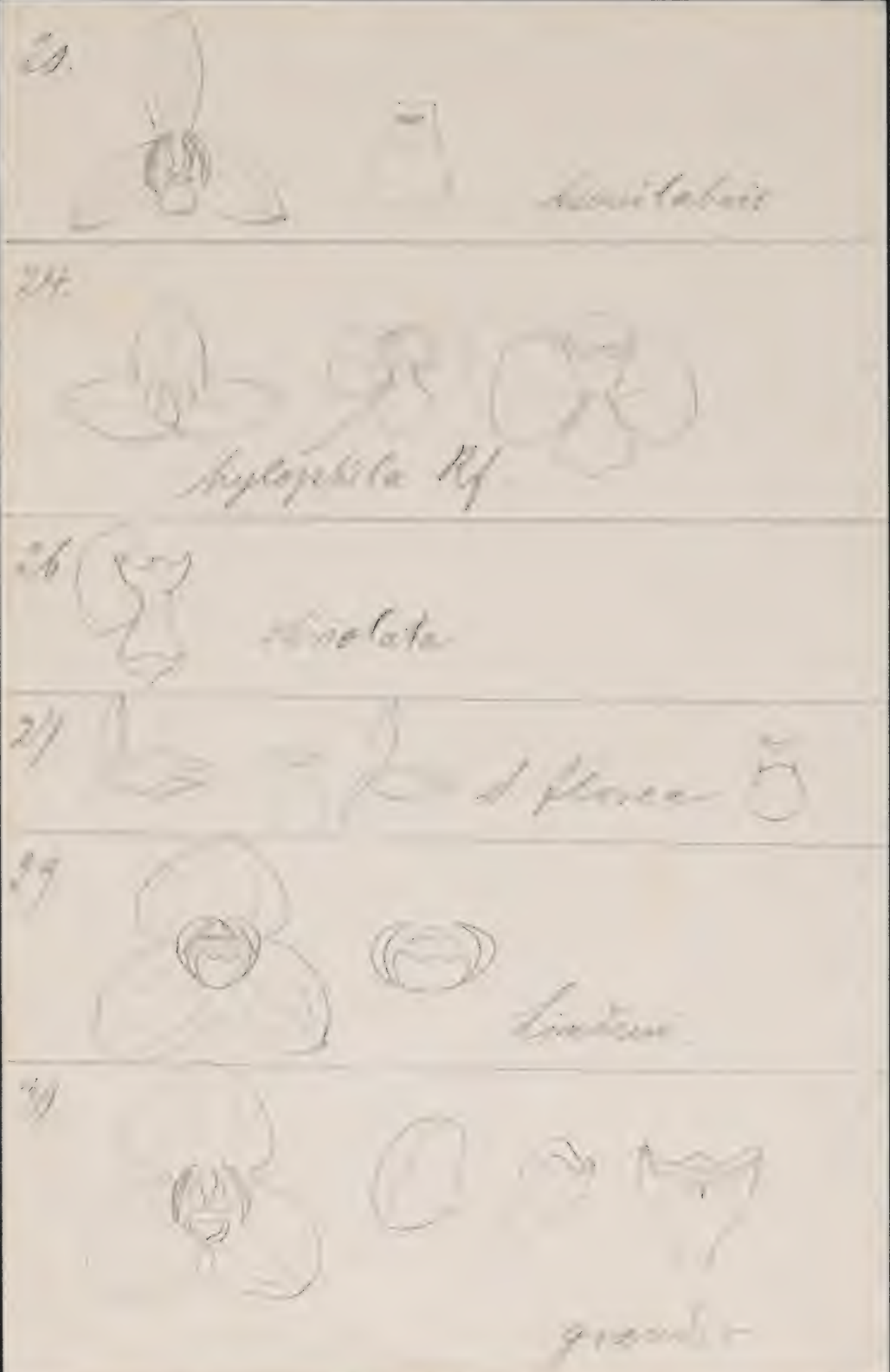
41

42.

43.

44.

45.



19.

Tendleri

12

jetaron

13

virio parpara

16

rafiera

17.

[illegible]

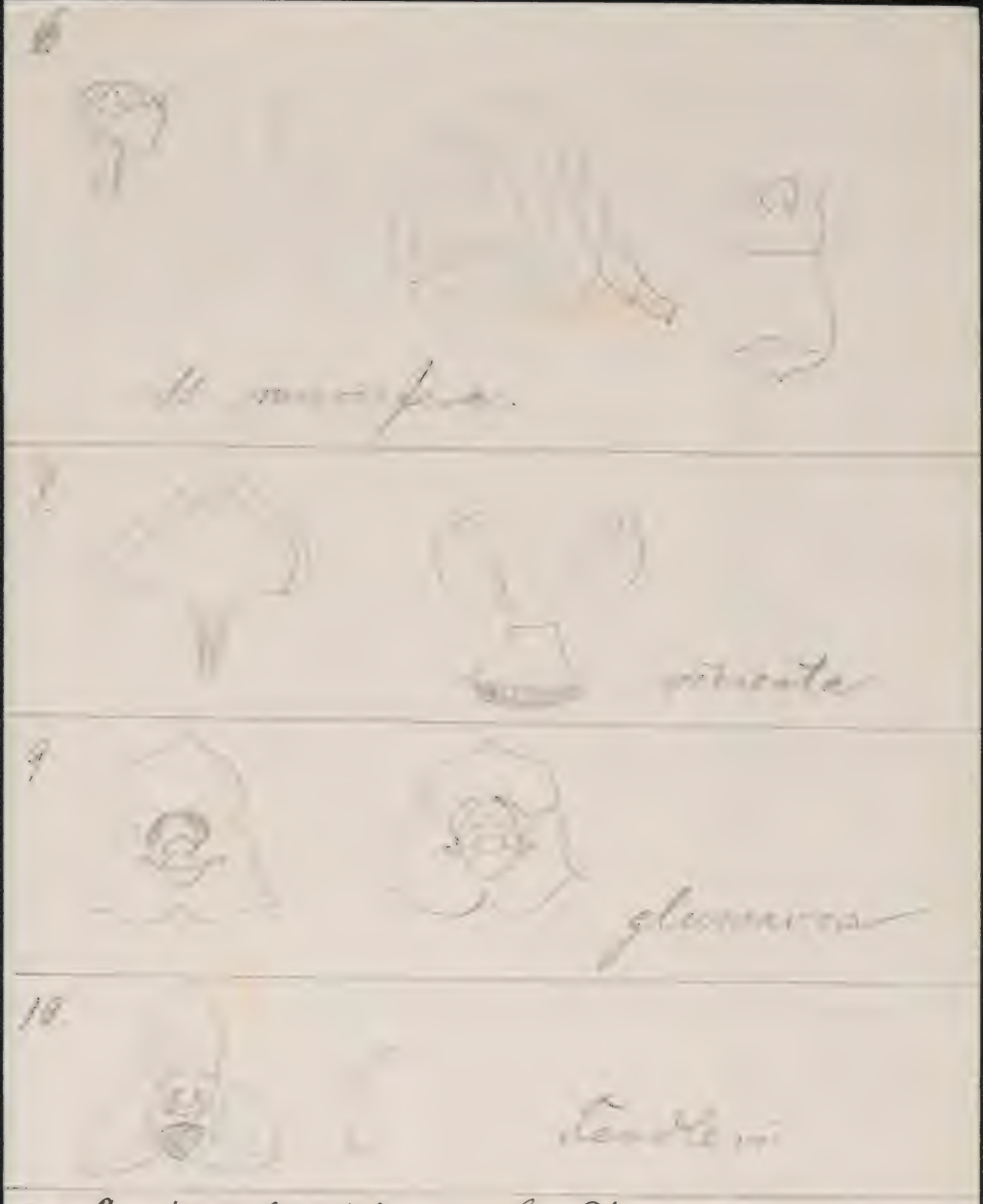
H. hirta.

H. tenera.

15 campanar
[illegible]

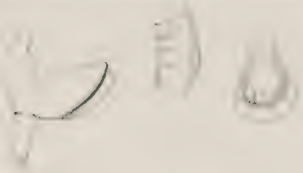
2/ [illegible]

H. S. Pierdiei.
H. coccinea
H. tridentata.



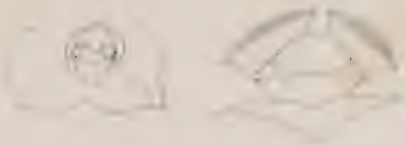
10 Fendler N. 1470. St. Fendleri.
Fl. deep yellow, also sulphureous yellow bracts very thin perfectly transparent, lower surface of leaves with minute black dots.

6. [illegible]



B.

1.



[illegible]

2.

[illegible]

5-4 Stelis coriifolia Ldl?
Plant Venezuelana Fendler 2444. 1865/6.
Flowers brownish purple, pedicels not curved leaves stiff & leathery thick fl. bracts long acuminate.

Bot. Mag. 3975.

Stelis (Acropurpurea. Hook.) ciliaris Lindl
Mexico. Tribe. Stelis N. 182.

Tab. 6521.

Stelis Brueckmuelleri Rf in horto Veitch.

Caespitosa glaberr. folio ellipt.-lanc. in petiolum angustato apice 2fido convexo medio profunde canaliculato racemo solitario filiformi folio 2plo longiore erecto multifloro. florib. numeros. diffitis undique spectantib. bract. infundibularib. ore valde obliquo infimis parv. vacuis, perianthio $\frac{1}{6}$" diam. sep. aequalib. late ovat. subacut. basi conat. pallide purpur. inte longe sparse pilos. pet. dolabriformib. labio parvo peltatim stipitato stipite geniculato, lamina ovato-obl. obt. basi truncata medio longitudinaliter alata, col. apice utrinque late auriculata auricul. patentib. obovato-rotundatis.

1, Side view of a flower. 2, front view of the same with the sep. removed, showing the 2 pet., lip & spreading auricles of the col. 3, Sepal. 4, Petal. 5, lip. 6, side view of column & lip 7 external & 8 internal view of anthercase 9. pollen.

Bot. Mag. 6521

Stelis Brueckmeallen. Rbth f.

3.

1319. Physosiphon. Lindl.

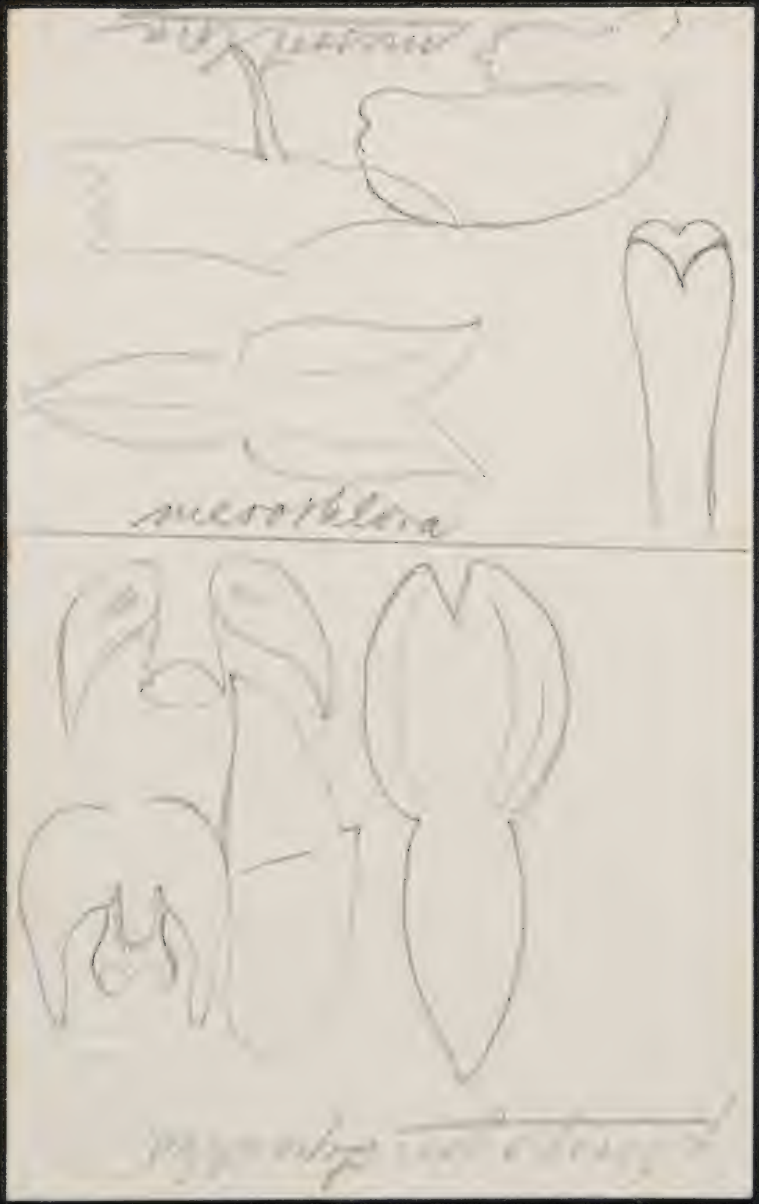
Physoriphon carinatum

Physoriphon

4

1324. Lepanthes. Sw.

orbiculata.
monophora



Lep. [illegible]

Lep. Gargantua

Lep. [illegible]

Lep. [illegible]

Lepr. Jamesii
[illegible]

Pere Jamesii Lepanther

Lepanther

[illegible] of the Cozenga Jamesii Pere [illegible]

Lepanthes tridentata. Sw.
prodr. p. 125. Sw. fl. Ind. occ. p. 1561.

Folio ovat. acut. apice 3 dentat. pedunculi sub 2 flor. folio longiorib. sep. ovat. lateralib. semicoñat. pet. semisagittat. tomentos. labelli ciliati lob. lateralib. rotundat. intermedio brevissimo acutiusculo incurvo, columna nana.

Caules caespitosi vaginis laevib. laxis cincti. statura a 2''' usque ad 2'' variantes. Fol. ovatobl. 1½'' longo. crassa, ape subtus pallidiora. Pedunculi terminales bracteati. Flores parvi, 2 labiati. oculo nudo purpureo-lutei. Sep. ovat. acut. aequalia suprem. purpur. luteo-marginat. lateralia semicoñata lutescentia, parum purpurata. Pet. atropurpur. tomentos. semisagittata sepalis ½ breviora. Lab. minus. lutescens, basi coniav. purpurascens cum basi columnae coñat. eae
eaque parallel. imo longius. 3 lob., lob. lateralib. ascendentib. ciliat. columnam amplectentibus. intermedio incurvo minus manifeste ciliato. Col. teres. 2 cornis basi tantum labello adnata stigmate depresso subcuneiformi. Pollinia 2 parallela, conica, caudiculis apice incrassato aurantiaco cohaerentibus.

Bot. Reg. 1762.

(Lepanthes tridentata. Swartz.)

Jamaica.

Bot. Mag. 4112.

Lepanthes sanguinea Hook.
Jamaica

Hook. Jour. of bot. I.

Lepanthes monoptera. Lindl.

Vagin. margine apicis. levissime pubescentib. folio lanc. apice obsolete 3dentato pedunculo subsolitario 2floro 3plo longiore. petal. lunatis labelli laciniis securiformib. carinat. pilos. ovarii angulati costa dorsali membranac. alata.

Caules [illegible], foliform. 2-3" l. glabri, vagin. instructi membranac. infundibularib., ore marginat. cuspidat. supremis majorib. Fol. solitar. lanc. coriac. apice praemors. 2" l. 3-4''' lat. Pedunc. folio 3plo brevior. 3florus. Bract. minutae vaginiformes. Flor. nutant. violacei? Ovar. angulat. costis sepalinis alat. postica latissime (?) Sep. ovat-lanc. acuta c. $1\frac{3}{4}$''' l. lateralia basi conata. Pet. breviss. glabra e basi angusta in laminam latam truncatam (ergo utrinque quasi cornutam) lunatam dilatat. angulis (si mavis cornubus) circa dorsum & faciem columnae incurvis. Lab. sepalis plusquam $\frac{1}{2}$ brevius, 2partit. cum columna usque ad $\frac{1}{3}$ ejus altitudinis conat. in axi callis 2 clavatis parallel. instruct. Laciniis ad utrumque latus columna adstantib. & alas omnino referentib. securiformib. pilos. carinat. margine inflex carinis longe extra medium lacinias valde obliquas reddentibus; inter lacinias, dest. apiculus parvus carnos. pubesc. Columna elongata, cylindracea clavata stigmate obliquo ad apicem, clinandris immarginato ad dorsum stigmatis. rostello parvo obtuso.

Anthera membranac. semi~~xx~~bilocularis ~~x~~ecristata.
Pollin. 2 pyriform. apicib. subdiaphanis vero-
similiter viscidis.

Fig 1. Apex of a leaf.
Fig 2 A vagina of the stem
Fig 3 Side view of an expanded flower $\frac{10}{1}$
Fig 4 Side view of the petals, labell & column $\frac{60}{1}$.
Fig 5. Half back. view with the 2 lobes of the
labellum in situ
Fig 6. Inside of the labell. which has been
torn from the column.
Fig 7 Apex of column with stigma. anther &
pollen masses in their nat. position
Fig 8. Pollen Masses.

Hooker. Journ. of Bot. I Tab. 114.

Lepanthes monoptera. Lindl.
Peru. Cuenca.

5

1329. Restrepia. Kth.

1.

7930

Restrepia antennifera H.B.K.

RESTREPIA ELEGANS KARST.

Vincent Brooks, Day & Son Imp.

L. Reeve & Co. London.

Restrepia striata

Bot. Mag. t. 7233.

Restrepia striata. Rolfe
Gard. Chron. 1891. I, 137.

7.

[illegible]

8.

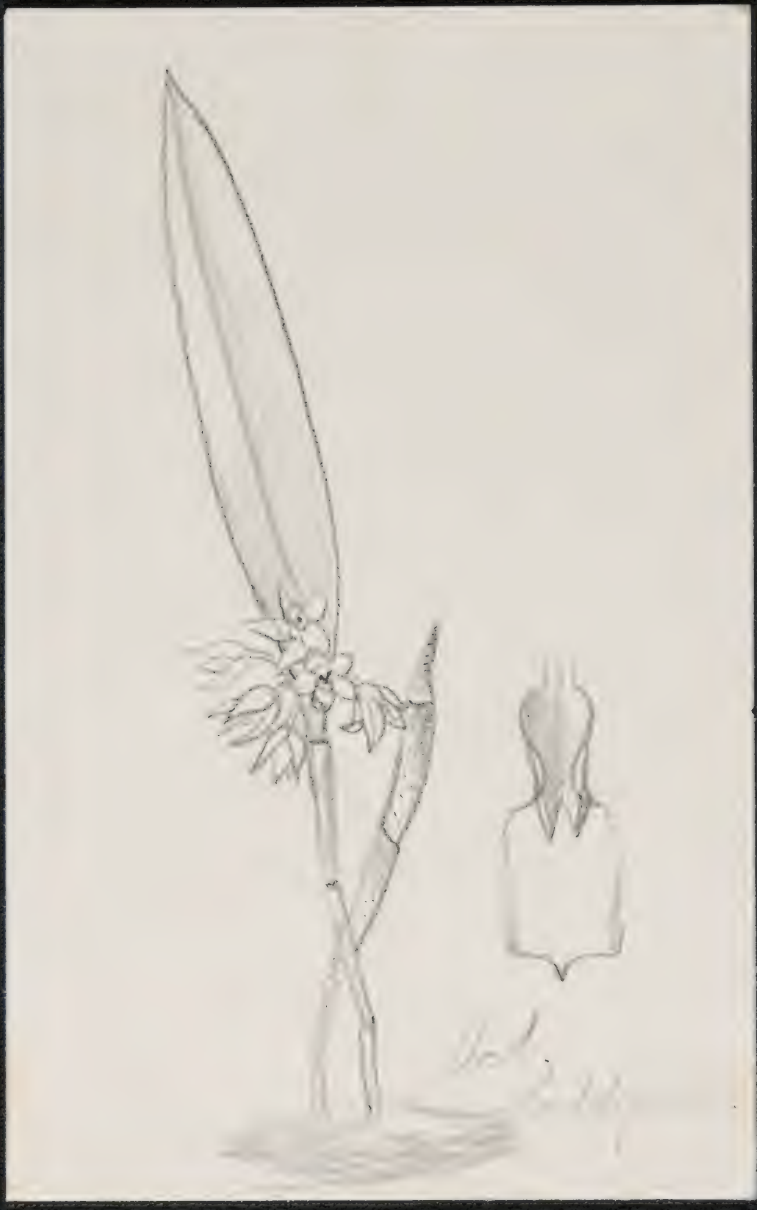
A. cucullata

8

1376. Arpophyllum Llav & Lex.

9. Octomeria R. Br.

Nawra. Itinera Principum Coburgi.



Bot. Mag. 2764

Petomeria graminifolia. R. Br.

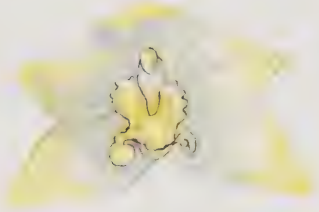
St. Vincent

[illegible]

Bauer & Lindl. Illustrat. Genera T. IV.

Oetomeria graminifolia. R. Br.
Caract. Isl.

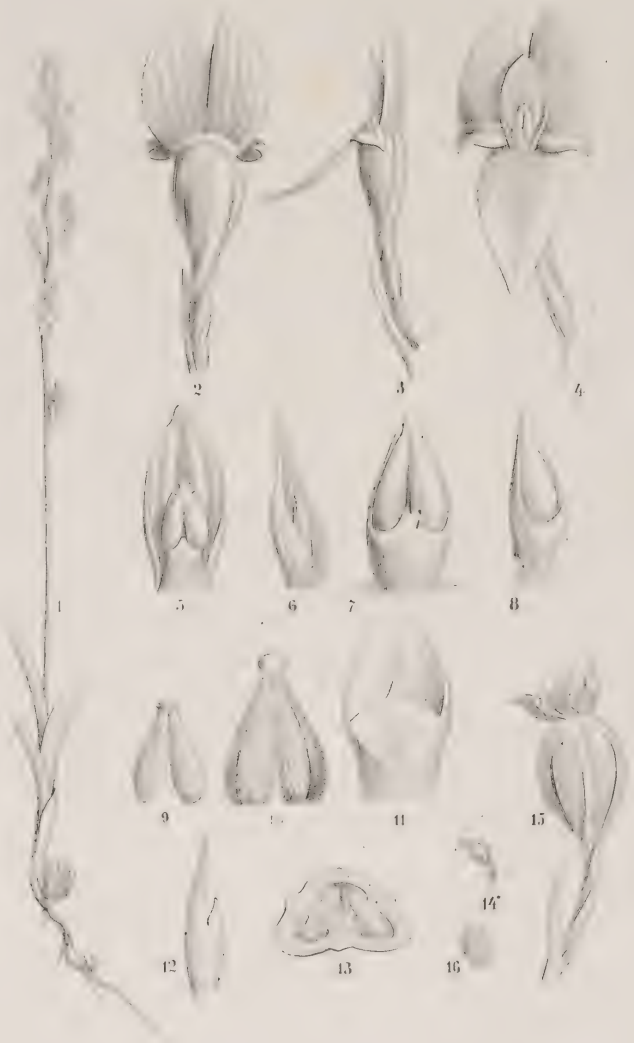
Bauer & Lindl. Illustr. Genera T. II



Selenipedium Bauerii. Lindl
West Indies.

10? Meyracyllium Rbch. F

11. Malaxis.



MALAXIS Rich

Fructus: Capsula ovata, costata, perianthio vestita et rimis longitudinalibus dehiscens. Semina minutissima subrotunda, ut plurimum sterilia.

Secundum cl. *Richard* huc pertinent species duae *Malaxis paludosa* Sw. et M. *monophylla* Sw., plantae tenellae, floribus minutissimis insignes, in Germaniae et Europae septentrionalis turfosis obviae; tubera parva, solitaria, foliis emarcidis tecta. Cl. *Lindley* unicam tantum speciem M. *paludosam* in hoc genere recepit.

Rich. Orch. Europ. l. c. p. 55.
Lindl. the genera and sp. of Orchid pl. I. p. 23
Lin. Gen. pl. ed. Spr. n. 3/11.

EXPLICATIO FIGURARUM.

1. *Malaxis paludosa R.* magn. nat.
2. Flos a dorso visus, cum germine et pedunculo contorto, magn. auct.
3. Idem, a latere visus.
4. Idem, a fronte visus.
5. Labellum cum gynostemio, a fronte. —
6. Idem, a latere visum.
7. Gynostemium cum pollinariis et stigmate, a fronte —
8. Idem, a latere visum.
9. Pollinaria.
10. Eadem arte separata et lente magis augente observata.
11. Gynostemium, sublatis pollinariis.
12. Idem, a latere visum.
13. Sectio transversalis germinis.
14. Capsula, magn. nat.
15. Eadem, magn. aucta.
16. Semen sterile.

MALAXIS *Rich. Lindl.*

(*Malaxis Sw. ex parte*)

Malaxis.

Syst. nat. Class. Monocotyledoneae, Fam. Orchideae Trib. Malaxinae.
Syst. Lin. Class. XX. Ord. I. *Gynandria Monandria.*
Bartl. Ord. plant. p. 56. *Kunth* Handb. p. 287.
Lindl. Einl. p. 384.

CHAR. GEN.

Flores pedunculo contorto insidentes, et in racemum laxum dispositi, parvi, flavo-virescentes.

Perianthii exterioris laciniae subaequales, superioribus erectis, inferiori pendulo; laciniae interiores multo minores, versus latera reflexae; labellum *posticum*, *erectum*, oblongum et integerrimum, basi cucullata gynostemium amplectens, perianthio brevius. Gynostemium minutum, erectum, parte stylina brevissima suffultum, teretiusculum. Anthera terminalis, (postica et intra marginalis R.) ex apice gynostemii antice deorsum excavati formata, subbilocularis, late dehiscens; (est androclinium, antherae vices gerens). Pollinaria quaterna sed geminatim sibi incumbentia et apice retinaculo subgloboso iuncta, clavata, obtusa, e polline *ceraeco-solido* constantia. Stigma sub anthera situm, transversum, subrhomboideum, apice in rostellum breve erectum et acutum desinens. Germen ovatum, *non contortum*, uniloculare et multiovulatum ut in caeteris generibus huius ordinis.

Rich. & Galeotti Ord. id. Mexic.
Pl. 5

Richard & Galeotti
Orch. Mex. Pl. 4.

1. Malaxis Galeottiana A. Rich.
2. M. Lindeniana Rich & Gal.

32. Dendrochilum. Bl.

12

1335. Microstylis. Nutt.

M. S. del., J. N. Fitch lith.

Vincent Brooks Day & Son Imp

L. Reeve & Co London

N 115 microsl. amphaloides
Lichen

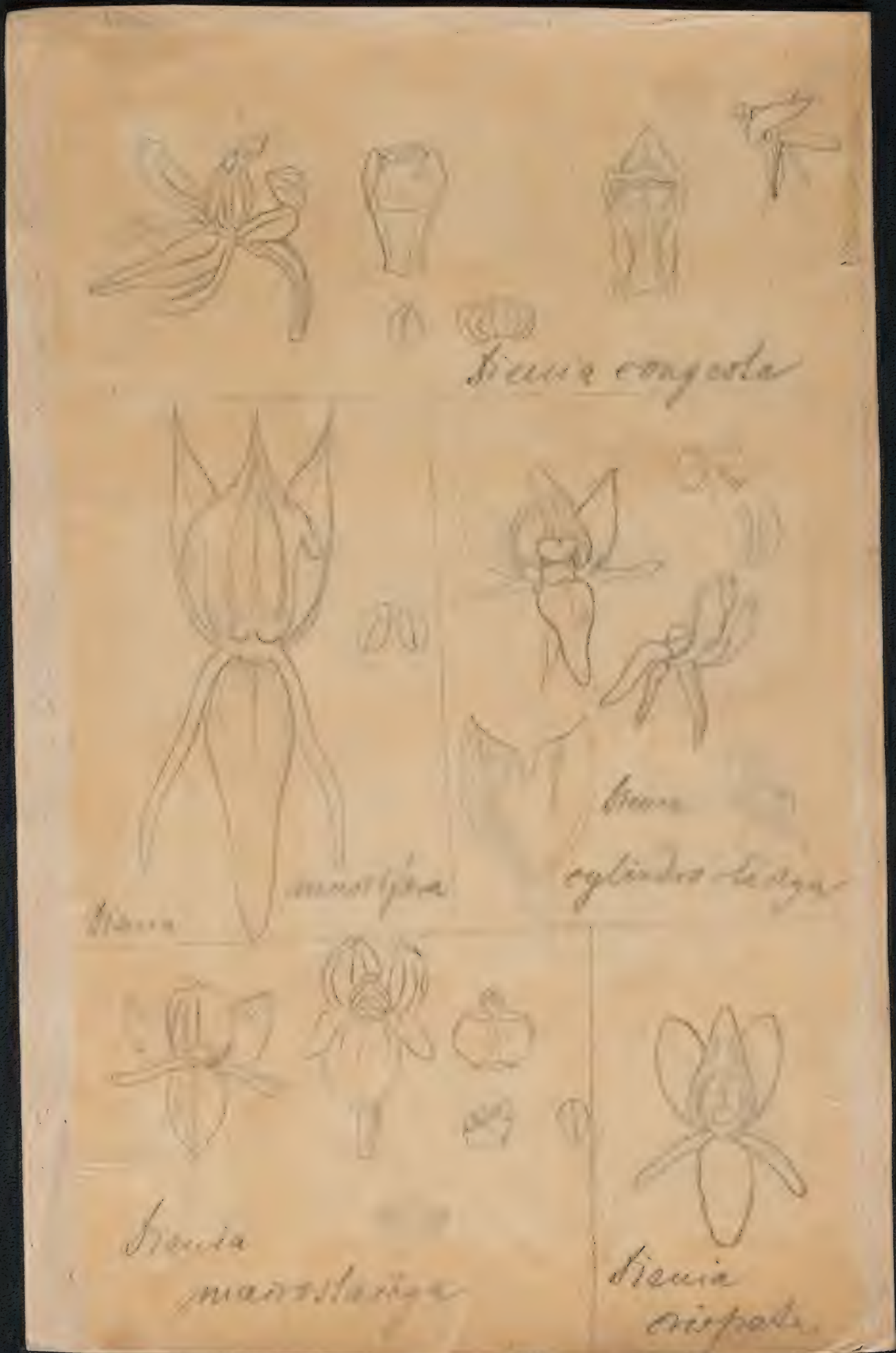
Montmorin – Paris
Bei rötlich grün. Lippe gelb.

Mirrolyt. braunlich. Lichen

Mirrol
Nicolas.

Phot. No

Cummings Photo


Sienia congesta
Sienia
cylindro-laciga
Sienia
macrostaciga
Sienia
crispata

M.
M.
M.

Curtis. Bot. Mag 1844. t 103.

Microstylis histionantha. Linx. Lindley & Otto.
Columbia.

Bot. Reg. 1290.

Microstylis ophioglossoides. Knth.
β. mexicana.
Mexico.
Blth. grün.

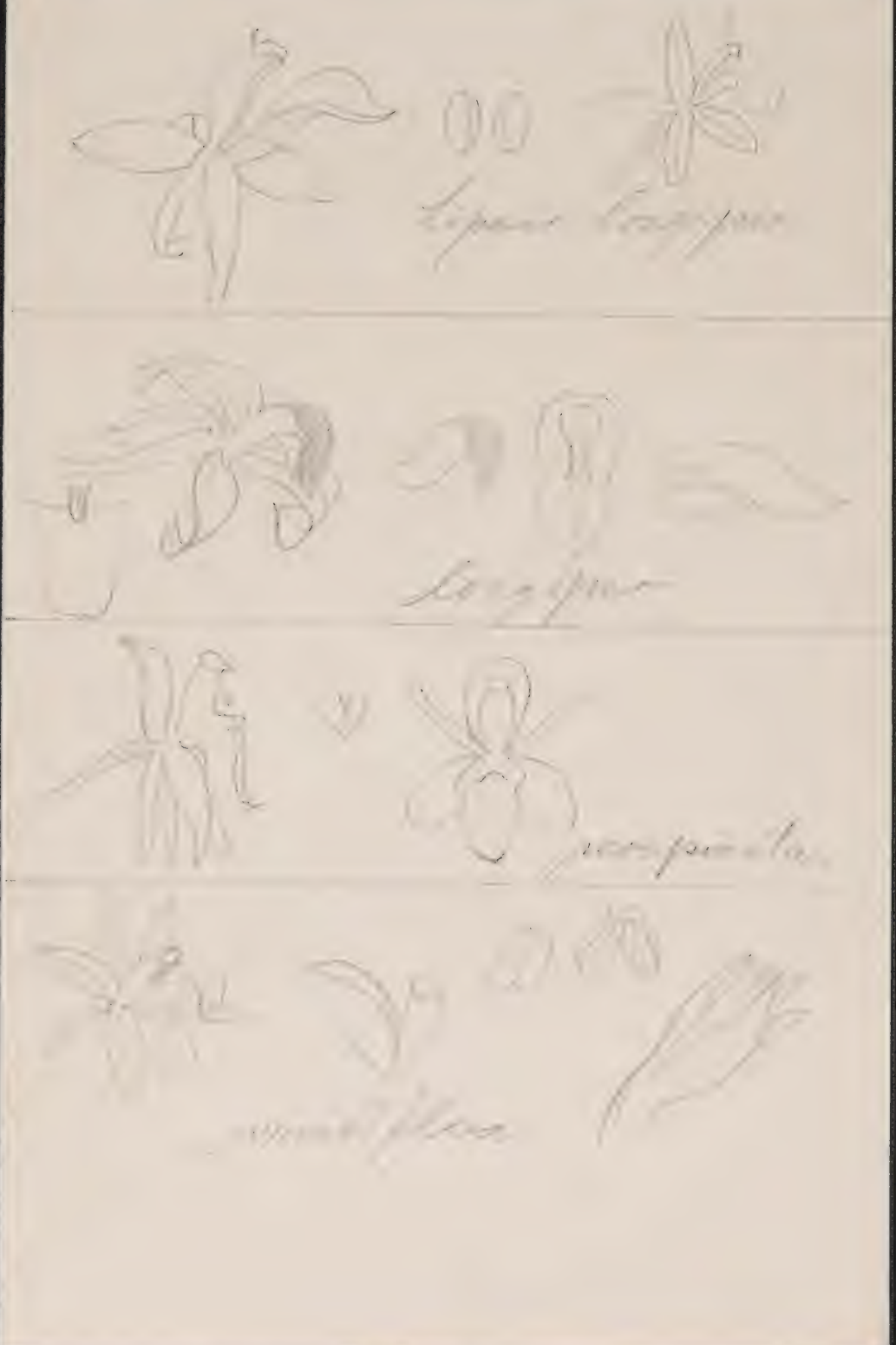
Bot. Mag. T. 6668.

Microstylis metallica. Rbdf.
Gard. Chron. 1879. II. 750.
Test. Notizbuch I. p. 86.

13

1330. Oberonia Lindl.

14. Lipsanis. L. C. Rich



dehiscens. Semina minutissima, oblonga, utrinque obtusa.

Herbae terrestres vel epiphytae; folia basi in bulbum concrescentia. In Europa unica species (*Liparis Loeselii*) et quidem in turfosis Europae borealis reperitur. Reliquae a cl. *Lindley* huc relatae species calidiores terrae plagas incolunt.

Rich. Orch. Eur. l. c. p. 54.

Lindl. the gen. and sp. of Orch. pl. I. p. 26.

Adn. *Liparis* a *Malaxide* perianthii forma et gynostemii structura longe recedit et *Corallorrhizae* magis affinis est.

EXPLICATIO FIGURARUM.

1. *Liparis Loeselii L.*, magn. nat
2. Praefloratio.
3. Flos, a fronte visus, magn. auctus.
4. Flos, sublatis laciniis perianthii, a latere visus.
5. Gynostemium, anthera erecta clausa del. pr. proscolla.
6. Idem, anthera prona et aperta del. pr. proscolla.
7. Idem, anthera reflexa et effoeta,
8. Gynostemium, sublata anthera del. pr. proscolla
9. Pollinaria gemina.
10. Eadem, separata et magis aucta.
11. Capsula matura, magn. nat.
12. Sectio transversalis, magn. aucta.
13. Semen.
14. Sectio transversalis bulbi, magn. nat.

LIPARIS *Rich. Lindl.*

Liparis. Glattkraut.

(Ophrys Linn. Malaxis Sw.)

Syst. nat. Class. Monocotyledoneae, Fam. Orchideae. Trib. Malaxidinae.

Syst. Linn. Class. XX. Ord. I. Gynandria Monandria.

Bartl. Ord. pl. p. 56. *Kunth* Handb. p. 287.

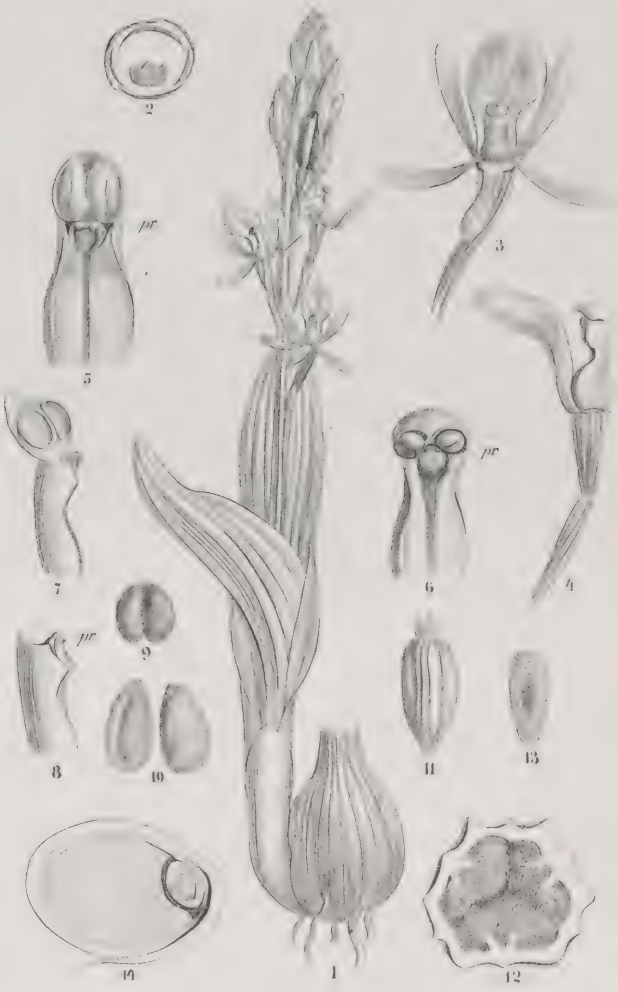
Lindl. Einl. p. 384.

CHAR. GEN.

Flores resupinati, pedunculis contortis insidentes et in racemum laxum dispositi, parvi, flavovirentes.

Perianthii laciniae exteriores subaequales, patentes, duae interiores angustiores, lineares, patentes; omnes marginibus involutae. Labellum *erectum* vel *obliquum*, canaliculatum, integrum et reflexum, basi gynostemio parum accretum. Gynostemium basi valde incrassatum, antice canaliculatum, supra medium utrinque emarginatum vel bituberculatum et parum incurvatum, superne alato-marginatum. Anthera terminalis, operculata, mobilis et prona, bilocularis, loculis discretis. Pollinaria duo, subglobosa e massulis binis in quovis loculo composita. Pollen subceraceum. Stigma subrotundum, in cavitate profunda infra antheram situm. Proscolla e tuberculis duobus mucilaginosis in margine superiori stigmatis sitis formata, post anthesin evanescens. Germen ovatum, costatum, vix contortum, uniloculare, multiovulatum, ut in affinibus.

Fructus: Capsula costata, in nostra specie obovato-oblonga, rimis ut in omnibus Orchideis



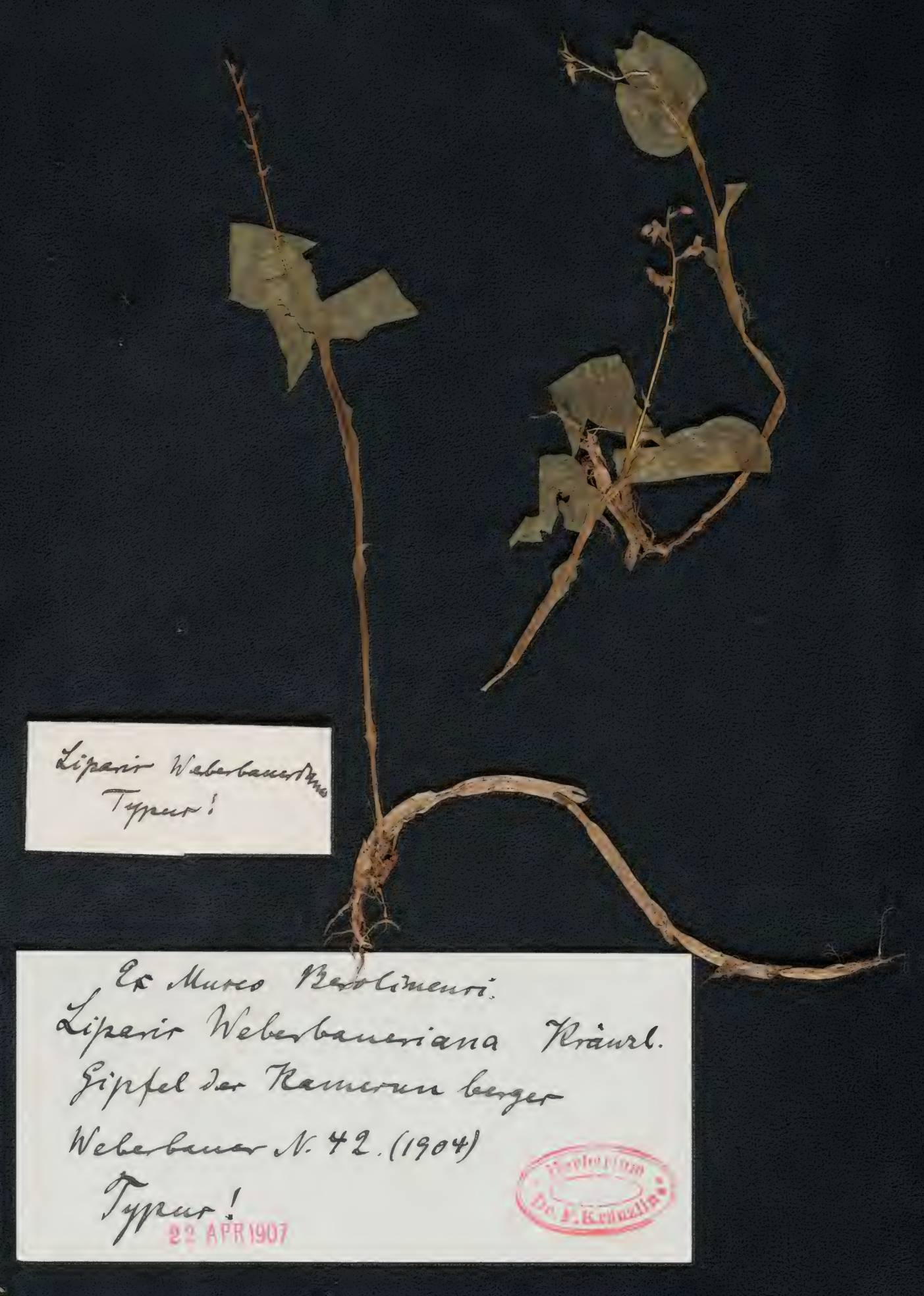
LIPARIS Rich

Lip. olivacea

L. Wightiana

Lip. [illegible]

[illegible]



Liparis Weberbauerana
Typus!

Ex Musco Berolinensi.
Liparis Weberbaueriana Kränzl.
Gipfel der Kamerunberge
Weberbauer N. 42. (1904)
Typus!

Herbarium
Dr. F. Kränzlin
22 APR 1907

Linn. Soc. Journ. XXV p. 29.

Gastroglottis

G. abbreviata

Lipans

Madagascar
Dr. Lyall

Lip. boolanensis

Lipario trivallosa

Liparis elata

Fol. obl. lanc. acuminat. undulat. plicat. bracteis foliac. reflex., labello obcordato 2tuberculato caulib. ovatis.

Terrestris. caules ovatos brevis cicatrizatos efformans. Fol. glabra basi vaginantia. pedales vel circiter. Scap. erect. simplex 2' angulat. angulis alat. Spica cylindrica sensim elongata apice nutans. Bract. ovatae virides reflexae ovario breviores. Perianth. patens Sep. exter. fusca. supremo lineari apice recurvo inferiorib. breviorib. obl. obl. labello sub. positis collateralib. basi conat. apice recurvis; interiora lin. convexa divaricata supremi longitudine. Lab. carnos. unguae viridi, subarecto canaliculato 2corni disco reflexo obcordato, fusco. Col. erecta arcuata semiteres antice ante stigma parvum concavum alata. Pollinia 4 cereac. glandula retinaculisque nullis

Bot. Reg 1175

Liparis elata. Lindl.

Rio.

Bot. Mag. 2709

Liparis foliosa. Lin.

Mauritius.

TAB. 8195.

LIPARIS TABULARIS.

Penang.

ORCHIDACEAE. Tribe EPIDENDREAE.

LIPARIS, *L. C. Rich.*; *Benth. et Hook. f. Gen. Plant.* vol. iii. p. 495; *Ridl. in Journ. Linn. Soc.* vol. xx. p. 244.

Liparis tabularis, *Rolfe in Kew Bulletin*, 1908, p. 68; species insignis, a *L. macrantha*, Rolfe, labello orbiculari obtuso et venis regulariter flabellatis differt.

Pseudobulbi anguste conici, 8–12 cm. longi, circa 2 cm. lati, vaginis membranaceis albidis venosis imbricatis tecti. *Folia* membranacea, ovato-elliptica, breviter acuminata, undulata, plicata, 9–14 cm. longa, 4–5 cm. lata; petioli dilatati, in vaginis imbricatis spathacco-oblongis acutis carinatis et striatis inclusi. *Scapus* erectus, acute 5-angulatus, purpureus, circa 15 cm. altus; racemus laxus. *Bracteae* triangulari-subulatae, acutae, 2 mm. longae. *Pedicelli* angulati, purpurei, 1·5 cm. longi. *Flores* magni, purpurei. *Sepalum posticum* oblongo-lanceolatum, acutum, 1·5 cm. longum; sepala lateralia oblonga, acuta, circa 1·2 cm. longa, marginibus revolutis. *Petala* filiformia, 1·5 cm. longa. *Labellum* orbiculare, crebre denticulatum, leviter recurvum, 1·5–2 cm. latum, ima basi callosum. *Columna* clavata, incurva, 8 mm. longa.

The genus *Liparis* is not often met with outside Botanic Gardens, as few of the species can be called showy. There are, however, a few exceptions, and among them the subject of the present plate. *L. tabularis* flowered in the collection of Mr. H. T. Pitt, Rosslyn, Stamford Hill, in April, 1906, and was exhibited at a meeting of the Royal Horticultural Society. Shortly afterwards a plant was presented to Kew, where it flowered in the following June, when the annexed drawing was made. After some correspondence it was ascertained that it had been sent by Mr. C. Curtis, of the Forest Department, Penang, to Mr. H. A. Tracy, of Twickenham, so that it is probably a native of the region mentioned. It is most nearly related to the Formosan *L. macrantha*, Rolfe, from which, however, it differs in having an orbicular lip, with regularly radiating veins. Its large reddish purple flowers with strongly denticulate lip render it very attractive.

Liparis is a large and widely diffused genus, being found throughout the tropics, and in subtropical, and even

temperate regions; a single species, *L. Loeselii*, Rich., being represented in a few British localities. The species are most numerous in the mountains of India and the Malayan Archipelago. Four other species have been figured in this work, namely:—*L. tricallosa*, Reichb. f. (t. 7804), a large-flowered Malayan species, closely striped with purple on the lip; *L. atropurpurea*, Wight (t. 5529), a native of South India, having dark purple flowers; *L. Walkeriae*, Graham (t. 3770), a Ceylon species with small green and purple flowers; and *L. foliosa*, Lindl. (t. 2709), a species with small green flowers, now known to be a form of the Australian *L. reflexa*, Lindl.

DESCRIPTION.—*Pseudobulbs* narrowly conical, 3–5 in. long, about $\frac{3}{4}$ in. broad, covered with white membranous veined imbricating sheaths. *Leaves* membranous, ovate-elliptical, shortly acuminate, undulate, plicate, 3–5$\frac{1}{2}$ in. long, nearly 2 in. broad; petioles broad, included within the basal imbricating sheaths. *Scape* erect, about 6 in. high, acutely 5-angled, purple; raceme lax, many-flowered. *Bracts* triangular-subulate, acute, $\frac{1}{6}$ in. long. *Pedicels* angled, purple, about $\frac{1}{2}$ in. long. *Flowers* large, reddish purple. *Dorsal sepal* oblong-lanceolate, acute, over $\frac{1}{2}$ in. long; lateral sepals oblong, acute, rather shorter and broader than the dorsal, revolute at the margins. *Petals* filiform, over $\frac{1}{2}$ in. long. *Lip* orbicular, closely denticulate, slightly recurved, about $\frac{3}{4}$ in. broad, with a thickened callus at the base. *Column* clavate, incurved, nearly $\frac{1}{2}$ in. long.—R. A. ROLFE.

Fig. 1, lateral petals and base of lip, with column; 2, anther cap; 3, pollinia:—*all enlarged.*

18 Corallorhiza. R. Br.

australis obvia. Radix (Rhizoma) corallina, ut in *Epipogio;* caulis aphyllus, squamis vaginantibus vestitus.

Linn. Gen. pl. ed. Spr. n. 3409.
Rich. l. c. p. 53.
Reich Fl. Germ. exc. p. 131.

Adn. Rhizoma singulare, tuberibus palmatis Scitamineārum quodamodo respondet, sed fibrae radicales deficiunt. Basis caulis intumescit, ut in illis, et ad eius latus novum bulbillum observavi.

EXPLICATIO FIGURARUM.

1. Flores *Corallorrhizae innatae R. Br.*, magn. nat.
2. Flos integer, a latere visus, magn. auctus.
3. Flos expansus, a facie superiori visus.
4. Idem, a dorso labelli visus, sublata lacinia superiori.
5. Labellum.
6. Gynostemium, anthera adhucdum clausa delin.
7. Idem, anthera dehiscente del. pr. proscolla.
8. Pollinaria proscollae adglutinata.
9. Granula pollinis, quae in stigmate in tubulos excrescunt.
10. Fructus immaturi, magn. nat.
11. Semen immaturum, magn. auctum.
12. Capsula matura, magn. nat.
13. Sectio transversalis.
14. Semen maturum, magn. auctum.
15. Radix, magn. nat.

CORALLORRHIZA *Hall.*

Corallenwurzel.

(Ophrydis species Linn.)

Syst. nat. Class. Monocotyledoneae, Fam. Orchideae, Trib. Limodorinae.

Syst. Linn. Class. XX. Ord. I. Gynandria Monandria.

Bartl. Ord. pl. p. 56. *Kunth* Handb. p. 287.

Lindl. Einl. p. 384.

CHAR. GEN.

Flores racemosi, pedunculis brevibus non contortis et bracteatis suffulti.

Perianthii laciniae conniventes; tres exteriores et duae interiores subaequales; Labellum inferum, patens, basi lineis duabus prominentibus longitudinalibus percursum, sed muticum (non calcaratum), trilobum, lobis lateralibus parvis, terminali maximo, apice subemarginato.

Gynostemium oblongum, rectiusculum, apterum, antice planum, dorso convexum, perianthio parum brevius. Anthera terminalis, ex androclinio formata, subtransversim dehiscens, bilocularis. Pollinaria duo, gemina, subglobosa, granulosa, sub anthesi proscollae adglutinata. Rostellum obsoletum. Proscolla globosa, sat magna, medio marginis inferioris antherae adhaerens.

Stigma infra antheram situm, subdeltoideum. Germen oblongum, *non contortum*, multiovulatum.

Fructus. Capsula elliptica, polysperma (pendula,) et Semina ut in caeteris plantis huius ordinis.

Species europaea unica (*Corallorrhiza inata R Br.*) in montosis Germaniae septentrionalis et

CORALLORRHIZA Hall

A. Rich. & Gal. Orch. Mexic. pl. 6.

Coeliorthiza
1. punctata Rich & Gal.
2. bulbosa Rich & Gal.

19. Tipularia. Nutt.

20. Oreorchis. Lindl.

Bull. Soc. Botan. d. France Vol 43. T. 13.

Oreorchis Fargesii Finet.

Bull. Soc. Bot. de France Vol. 43 t. 14

Oreorchis unguiculata Finet.

Bull. Soc. Bot. de France Tome 44 (1897) Fig. 3

Orcordis gracilis Fraud. & Savat

Oreorthis pedens. Lindl.
Regel Tent. fl. Ussur. tab XI. 1-7.

nidifica typ

Bot. Mag. 6368.

Masdevallia [polysticta. Rbf.]
Nördl. Peru.

F. C. Lehmann No. 217

Masdevallia amanda Kohl. f.

Mardevallia amanta Rchb. f.
F. C. Lehmann No 275.

ALPINE PLANTS.

(*Continued from p.* 180.)

CHEMICAL NATURE OF THE SOIL.—The chemical properties of the soil exercise a great influence on alpine vegetation. Some plants grow on limestone, others on a soil completely free from lime, and on schists of various composition. In the plains the alluvial soil has been deposited by water at various times. They are, consequently, of a very mixed character, whence the possibility of growing so many plants of different nature in the same soil. On the mountains, where the nature of the rock varies, we may have calcareous or schistose soils. Each of these soils has its own particular flora. In former times the alpine flora was specially divided into a limestone and into a granitic flora, but now it is recognised that it is lime alone which exerts an influence. The lime is noxious to some plants and favourable to others. Sometimes species are so nearly allied that the differences between them are very slight—so slight, indeed, that we may take them to be varieties induced by the lime; thus, in the case of Anemone alpina and its variety sulphurea, while the first occurs over large areas of limestone soil, the second is never found except on schistose or granitic soils destitute of lime. The difference between these two plants is but slight, the corolla being white in the one plant and yellow in the other, and yet the demarcation is so marked that one can often tell with certainty the nature of the soil by the plant which is growing upon it. Moreover, I have seen in the charming Valley of Fully, in the Valais, at the foot of the Dent de Morcle, immense patches of Anemone alpina, where the transition from a calcareous to a granitic soil was marked by insensible gradations in the colour of the flower. The soil being very mixed in that locality, the further one advanced toward the foot of the Dent de Morcle the deeper the colour of the flower became. The graduation ceases above the Lake of Fully, where there is an immense area of Anemone sulphurea of the deepest possible yellow. On the Chasseron in the Jura I found, six years ago, a small plot of A. sulphurea in the midst of a large mass of A. alpina. On examining the soil I found it stiff—"lehmig," as the Germans say, and quite different from the surrounding soil. It was probably due to the disaggregation of a mass of schistose rocks brought to the Jura by the same causes which have served for the transport of the erratic blocks.

Viola calcarata, L., and V. cenisia, L., are two very distinct species, but which are never found on the same soil. The first occurs on calcareous soils, the other on the schist of Mont Cenis. The same remark applies to the Rhododendrons. R. ferrugineum, L., is never found except on the granitic slopes, while R. hirsutum prefers a limestone soil. Nevertheless, R. ferrugineum in the Western Jura is found on a soil clearly calcareous. For my part, I doubt its being truly wild in this locality, and suppose that it must have been transported by some means or other. It is very limited in range and does not grow freely. Moreover, there is between the subjacent rock and the surface soil a covering of humus intervening between the roots of the plants and the limestone rock.

I add a list of certain species of the same genera remarkable for their liking for a limestone soil, or the reverse :—

Limestone Plants.	*Calcifuge Plants.*
Achillea atrata, L.	A. moschata, Wulf.
Alyssum montanum, L. ..	A. Wulfenianum, Bernh.
Androsace lactea, L.	A. carnea, L.
Anemone alpina, L.	A. sulfurea, L.
Arenaria ciliata, L.	A. multicaulis, L.
Aretia helvetica, Gaud. ..	A. glacialis, Hoppe
Artemisia glacialis, L... ..	A. mutellina, Vil.
Astrantia major, L.	A. minor, L.
Betula alba, L.	B. pubescens, Ehr.
Dianthus alpinus, L.	D. glacialis, Haenk.
Draba aizoides, L.	D. frigida, Saut.
Epilobium Dodonæi, Vill. ..	E. Fleischeri, Hochst.
Erigeron alpinus, L.	E. uniflorus, L.
Gentiana Pneumonanthe, L. ..	G. excisa, Presl
Hieracium villosum, L. ..	H. alpinum, L.
Hutchinsia alpina, R. Br. ..	H. brevicaulis, Hoppe
Juncus Hostii, Tausch ..	J. trifidus, L.
Pedicularis Jacquinii, Koch ..	P. rostrata, L.
Primula Auricula, L.	P. villosa, Jacq.
,, Clusiana, Tausch ..	P. integrifolia, L.
Ranunculus alpestris, L. ..	R. rutæfolius, L.
Rhododendron hirsutum, L. ..	R. ferrugineum, L.
Salix retusa, L....	S. serpyllifolia, Scop.
Saxifraga muscoides, Wulf. ..	S. moschata, Wulf.
Sempervivum hirtum, L. ..	S. arenarium, Koch
Silene alpestris, Jacq.	S. rupestris, L.
Veronica saxatilis, Jacq. ..	V. fruticulosa, L.

Any one acquainted with alpine plants will readily see that there is very little difference between some of the species here mentioned. For my part I believe that the chemical composition of the soil may modify the appearance of species. I have seen, for instance, plants of Rhododendron, the characteristics of which were so ill-marked that I could not at first sight tell whether I had before me R. ferrugineum or R. hirsutum. R. intermedium of Tausch is only one of the intermediate forms between these two species. The importance of attending to the chemical nature of the soil will be appreciated by the cultivator, for if he attempt to grow a plant to which lime is objectionable on a calcareous soil, or *vice versâ*, he must be prepared for disappointment.

As to the physical nature of the soil and its influence on vegetation, that also is very important. The soil of the Alps is rarely stiff clay, almost always it is light and open, and readily absorbs moisture and heat; nevertheless, it is often mixed with stones, gravel, and fragments of rocks. In the lofty stations, beneath the icy ridges, the soil in which the alpine species exists is nothing but fine gravel, containing very little humus, but constantly moist. The water which percolates through such soil appears to furnish to the plant the nourishment which so arid a soil itself cannot give.

In less elevated spots, in the moraines and landslips, for instance, plants are found which grow only in a soil composed of pounded rock, and which contains absolutely no humus. Viola cenisia, L.; Campanula cenisia, L.; Linaria alpina, L.; Lepidium alpinum, L.; Thlaspi rotundifolium, Gaud.; Ranunculus parnassiifolius, L., &c., are generally found in soil which is produced from the wearing down of schistose and slate rocks. *Henry Correvon, Geneva.*

(*To be continued.*)

Florists' Flowers.

GREENHOUSE FLOWERS: AZALEAS.—The plants that have been placed out-of-doors may remain there for some time yet. See that they do not suffer for want of water at the roots. The latest flowering varieties will speedily have to be removed from the forcing-house. Air must be admitted more freely to the forcing-house for a few days before they are removed to the greenhouse. Cuttings put in now will form roots well if they are carefully removed from the plant with a heel, and the bark must not be injured when cutting off the leaves. See p. 142 for further information.

CALCEOLARIAS.

Seeds may still be sown as previously advised, and if the young plants produced from seeds sown earlier are large enough, they ought to be pricked out. If this is not done in an early stage of the plants' growth many of them will be likely to damp off. The plants will succeed best at this season of the year if they are placed in a frame on the north side of a wall or hedge.

CHRYSANTHEMUMS.

The plants of all the sections should be now in their blooming pots; the plants that are intended to produce large specimens should now be trained into shape, while the growths are pliable. The growers about London tie them down very close to make dwarf specimens, but they are often trained down so very close as to be quite deformed when blooming time arrives. It is best to study the natural habit of the plant, and to tie and train the growths as near as possible to that, and not in the form of an old-fashioned watch-face or a molehill. The pompons form a dwarf spreading bush, and the large-flowered section grow 3 or 4 feet high when well managed; but if they suffer for want of water, or are placed too close together, the lower leaves fall off, and the whole plant is rendered unsightly. There must be no stopping of the growths after this, and in a week or two the blooms must be "set"—that is, as soon as the flower-bud can be discovered. The growths that start just under it must be pinched out with the finger and thumb. This remark applies specially to the plants intended to produce exhibition blooms.

CINERARIAS.

The early flowering plants have been potted into their blooming pots. Those raised from later sown seeds will be potted on as they require it. There are no special instructions required at present. Fumigate for thrips and greenfly; dust the leaves with flowers of sulphur on the first appearance of mildew.

CHINESE PRIMULAS.

The plants sown in April have been potted into 4 and 5-inch pots, and are now growing freely in a cold frame, under the same conditions as Cinerarias, Calceolarias, and other soft-wooded plants that dislike too much sunshine. The later plants must now be pricked out of the seed-pots, and also be carefully attended to. We raised a number of plants from cuttings early in the year of Gilbert's double varieties. These are now good-sized plants in 5-inch pots. A few flowers have appeared on some of them; these have been removed, and the plants will be potted into 7-inch pots. They will make large specimens, to bloom at Christmas, but they must be aided with a little heat when the weather is cold.

CYCLAMENS.

These have now started to make their growth, and have been repotted into the pots in which they are to flower. Our plants have been exposed to the open air all through the summer months, and have required very little attention up till now. The plants have been placed on a shelf in the greenhouse. Young seedlings raised early in the year should now be repotted into their blooming pots. The crown of the corms should just be above the surface of the soil in the pots.

GLOXINIAS.

I do not know whether this beautiful hothouse plant has, or has not, been classed with florists' flowers; if it has not, then it ought to be—it is so easily grown, and gives such good results from a small amount of labour. The plants that flowered early in the year should be placed in a position where they do not receive much water; in fact, they should be gradually dried off. To produce a good display in the autumn, seedlings are the best. I sowed a packet of seeds early in February, which speedily vegetated; they were pricked out when ready, and potted on as they required it. Most of the plants are now in 4½-inch pots. Some of them are in flower, and others are coming on. I measured two of the largest plants, and found they were 19 inches across. If the seeds are saved from good varieties most of them will be as good as the parents.

LARGE-FLOWERED PELARGONIUMS.

These are now all starting freely into growth. Those who wish to have their plants bloom early will have shaken them out and repotted them by this time. We do not bloom ours very early, but they are now ready, and will be repotted as soon as we can find time to attend to them. See p. 142 for further cultural instructions. As soon as the plants start to grow the house they are in ought to be fumigated, to prevent greenfly from spreading.

PETUNIAS AND VERBENAS.

These may come in very useful, along with Fuchsias and zonal Pelargoniums, to make a good display in the greenhouse now and later in the year. They do best out-of-doors up to the time they have to be placed in the greenhouse. If the pots in which the plants are growing are full of roots, weak manure-water will help very much to strengthen the bloom; this should be given at each alternate watering. *J. Douglas, Ilford.*

HERBACEOUS PHLOXES.—These have been very beautiful at Chiswick, but are now a little past their best. What deep rich hues many possess, and what perfection of form! The trusses, too, are large, and, when fully expanded, are singularly showy and effective. The following make a fine selection from those found in the gardens:—Gloire de Neuilly, deep rich carmine; Chas. Boulliard, purplish-crimson; Hugh Gardiner, white-flushed arrayed with purple; Lothair, rosy-carmine; Baron Rigaut, rosy-crimson; Mdlle. Marie Saison, rosy-red; Foudroyant, rosy-pink; Coccinea, crimson-scarlet; Mons. Gustave Doré, rosy-puce; Countess of Breadalbane, purplish-lilac; Ovid, white, crimson eye; Countess of Rosslyn, white, purple eye.

DOUBLE CHINESE PRIMROSES.—Even though there may be nothing new in the method of propagating these adopted with so much success at Chiswick, yet it is an excellent one beyond question. Early in June the large plants that need division are thickly surfaced with sandy soil, the stems of the crowns being first well cleansed of all decayed leaf-

Orchid Notes.

The Cultivation of Cattleyas. — Mr. Findlay's article on this subject has called forth some response, and it would be well if a few other good growers would give us their opinion. Mr. McDonald, at p. 142, with his practical experience, decides positively for potting them in peat and sphagnum. Mr. Anderson, at p. 174, seems halting between two opinions. He says they can be grown "upon the purely epiphytal principle" as well as if they were potted in peat and sphagnum. I do not think they can be grown either as well or as easily on the cultural requirements of each genus. Mr. Anderson does not say why he referred to the Constable-Burton Orchids, or whether he ever saw the plants to which he alludes. I did see them, and thought the Cattleyas very much over-potted. I mentioned the large specimens of Cattleya Skinneri in the *Gardeners' Chronicle* some time ago; they were certainly very large specimens, but, with all due deference to the gardener who grew the Orchids so well, I think those same Cattleyas would have done even better if they had been placed in smaller pots, and had a much smaller quantity of organic matter about their roots. Many Orchid growers overpot their plants, especially what we may call the block system. How does Mr. Anderson grow his own?—or how do all the principal growers of Cattleyas grow them? When I visited the late Mr. Dawson's collection, when they were under Mr. Anderson's care, I found the largest proportion of the Cattleyas in pots. About the same time I inspected the collection of Provost Russell at Falkirk, under the care of Mr. Sorley, and found some of the finest Cattleyas and Lælias I ever saw growing in pots. How do you find the best collections in the South—that of Sir Trevor Lawrence as a private collection, of Messrs. Veitch, of Chelsea, of Mr. B. S. Williams, of Holloway, and others? They are nearly all growing in pots. All these gentlemen have had long practical experience in the culture of Orchids, and know well what are the Cattleyas. Mr. Dominy, late of the Exotic Nursery, Chelsea, who has spent the best part of a lifetime amongst them, insists, above all things, upon using small pots for the size of the plants, and draining the pots well. If the peat and sphagnum is thoroughly permeated with roots the material would not get sour, but if there is too much organic matter it will decay and become sour before the roots have ramified into every part of it, and as the roots run into it they will decay.

Mistakes are often made, not only by placing the plants in pots that are too large, but by potting at the wrong time. Cattleyas should be potted just before the young roots emerge from the base of the last formed pseudobulbs, and if the plant to be potted is in good condition the compost and the drainage will be quite full of roots, and a large, very large portion of them will be firmly attached to the inner surface of the pot. It would be most disastrous to turn the plants out of the pots by tapping the rim on the edge of the potting bench, as the plant is held inverted in the hands; most of the roots would be torn off and broken that way. I take a hammer and carefully break the pot to pieces, and where the roots are firmly attached to the broken portions they are not removed from them at all. They help to keep the compost more open. The potting material should be placed very carefully amongst the roots, the greatest care being taken not to break them more than is necessary. The plants should also stand well up in the pots. *J. Douglas.*

Fig. 50.—Masdevallia bella. (see p. 236.)

Agricultural Returns of Great Britain for 1881.—The Statistical and Commercial Department of the Board of Trade have issued a summary of the returns collected on the 4th of June last, which shows the extent of land in Great Britain under Wheat to be 2,806,057 acres, or 103,381 acres less than in 1880; Barley, 2,442,405 acres, or 25,036 acres less than in 1880; Oats, 2,901,135 acres, or an increase of 104,230 acres; Potatos, 579,431 acres, an increase of 28,499 acres over 1880; and Hops, 64,128 acres, or a decrease of 1577 acres. The total number of live stock in Great Britain on the same day is given as, cattle, 5,911,524; sheep and lambs, 24,582,154; pigs, 2,048,034.

B

[illegible]

[Bonplandi ?
Forte ?]

Bot. Mag. tab. 7125.

Masdevallia Carderi Rchb.f.
cf. Gard. Chron 1883 I p. 784
& " II p. 181.

Tab. 6372.

Macdevallia Shuttleworthii. Rbf.

M. Sk. Rbf. Gard. Chron. 1875. p. I. pag. 170.
& 1876 p. II pag. 782.

Foliis petiolat. elliptico-oblong. subacut. 3-nerv.
Scapis folia subaequatib. 1-floris viridib. florib.
pro planta amplis. Bracteis acum. perianthii
tubo brevissimo basi gibbo, sepalo dorsali
modice cucullato suberecto obovato repente in
caudam longissim. angustato roseo punctis pallide
conspuriato et nervis 5-7 roseis instructo
sep. lateralib. oblique ovat. in caudas elong. sensim
attenuat. saturate ros. punctis rubris conspuriat.
pet. lineari-obl. apice obtuse 2 lobis, labelli
lamina late oblonga apice recurva obtusa
disco 2 carinata, columna brevi.

Bot. Mag. 6372.

Masdevallia Shuttleworthii. Rchb.f.
Colombia

Masdevallia [illegible]

F. C. Lehmann No. 211.

Bot. Mag. tab. 6977.

Masdevallia Chestertoni Rchb. f. Gard. Chron. 1883 p. 532.

Chesterlonii

Mardevallia Rchb.f

F. C. Lehmann. No. 310.

—— DEAN STANLEY.—The death of this noble-minded man, whose every effort was for the good of his fellows, will be felt as a great sorrow and a greater loss, even by those who dissented from his views. It is sad to think of the probability that he met with his death when engaged—characteristically engaged—in promoting the happiness of the poor of Westminster at a meeting of the Society for the Promotion of Window Gardening in Westminster.

—— FIGURES AND FANCIES.—There is a peculiarity (says the *Builder*) about the date of the present year of grace which may afford materials for those who are seeking for omens and portents in these terrible times, and which, so far as we know, has not before been pointed out. The date 1881 reads the same either from left to right or from right to left, as it does also if read upside down. Some thousands of years must elapse before it will be possible to say the same thing again—not, indeed, before the year of our Lord 8008. Eighty years hence, namely in 1961, it will read the same upside down, but not, as in the present case, from left to right and right to left. The figures of the current year, 1881, are divisible by 9, giving 209 as result, and added together the four figures make 18, also divisible by 9, or making 9 when added together.

—— FLOWERS IN SEASON.—Mr. WARE sends us specimens of the old double White Lily, in which there is no flower properly speaking, but merely a branching panicle, each branch of which is covered with a collection of white leafy bracts. This is a very old inhabitant of our gardens, and when well developed is not without beauty. From the same source comes a fine specimen of Plantago major, in which the inflorescence is represented by a branched panicle, the ultimate branchlets of which are covered with minute green bracts. This, like the foregoing, is a very old inhabitant of our gardens.—From Mr. TYERMAN comes a portion of the spike of Puya Whytei, a remarkable and handsome Bromeliad, with long, narrow, grey, channelled, recurved leaves, sharply and strongly saw-toothed, and with a tall branching panicle (4 feet high) of greenish blue flowers, each about 2 inches long; the anthers are bright orange, forming an extraordinary contrast to the dark sea-green petals. The plant is very scarce, but as it stood out unprotected against a south wall in Cornwall last year, we may hope that it will become more common.—Cladrastis amurensis: This is probably better known under the name of Maackia amurensis. It is native of the Amoor River, and, like so many plant from that region, is perfectly hardy in this country. In its native country it attains a height of 30 or 40 feet, and has bark which peels off in flakes like that of our common Birch. The flowers are yellowish-green, and are much more densely packed, besides being smaller in size, and with shorter pedicels than those of its North American congener, C. tinctoria; the foliage, too, is smaller, and a darker green. Specimens are now in bloom in the Kew Arboretum. The species was figured recently in the *Botanical Magazine*, and Sir JOSEPH HOOKER, finding that Maackia was not distinct from Cladrastis, sunk it under that genus. By the way, Cladrastis tinctoria (Virgilia lutea) has flowered more freely at Kew this season that it has for many years past, and the same may be said of Robinia viscosa, the Honey Locust, Gleditschia triacanthos, and many other North American trees. —Lilium pardalinum: Mr. WARE sends us flowers of this species, singularly malformed. In some cases a check to growth has taken place, so that the flower segments are green instead of being coloured, while some of the stamens are only about half their proper length. In other cases the flower-segments were provided at their base with a series of crests, ridges, keels, fringes, and warts, separately or mixed, all being outgrowths (enations) from the inner surface of the segments, and calling to mind the fringes on the flower-segments of some Irises, and still more the outgrowths from the lip of some Oncids or Odontoglots.

—— PETUNIAS.—No florist can be unaware of the great improvement that has been effected in the Petunia within comparatively few years. This fact was strongly impressed upon us during a recent visit to the Perry Hill Nurseries of Messrs. J. CARTER & Co. Very many thousands of seedlings are there cultivated in pots and fertilised by hand. A goodly number of plants, from which no seed will be saved, have been weeded out from among the intended seed bearers, and there is scarcely one of these that would not have been looked upon as a first-rate flower a few years ago. Size of flower, colouring, substance, &c., are now looked upon as essential and a distinct strain seems to have been derived in which the good points just mentioned have been attained, accompanied by a beautiful fringing to the corolla quite as distinct as in the finest fringed strains of the Chinese Primrose.

—— STORING ELECTRICAL POWER.—Writing on the subject of the storage of electrical power as effected by the FAURE battery, which can be charged with electricity and carried from place to place, and utilised when and where required, Sir WILLIAM THOMSON says:—"The largest useful application waiting just now for the FAURE battery—and it is to be hoped that the very minimum of time will be allowed to pass till the battery is supplied for this application—is to do for the electric light what a water-cistern in a house does for an inconstant water supply. A little battery of seven of the boxes suffices to give incandescence in SWAN or EDISON lights to the extent of 100 candles for six hours, without any perceptible diminution of brilliancy. Thus, instead of needing a gas-engine or steam-engine to be kept at work as long as the light is wanted, with the liability of the light failing at any moment through the slipping of a belt—an accident of too frequent occurrence—or any other breakdown or stoppage of the machinery, and instead of the wasteful inactivity during the hours of day or night when the light is not required, the engine may be kept going all day and stopped at night, or it may be kept going day and night, which will undoubtedly be the most economical plan when the electric light comes into general enough use. The FAURE accumulator, always kept charged from the engine by the house-supply wire, with a proper automatic stop to check the supply when the accumulator is full, will be always ready at any hour of the day or night to give whatever light is required. Precisely the same advantages in respect of force will be gained by the accumulator when the electric town supply is, as it surely will be before many years pass, regularly used for turning lathes and other machinery in workshops and sewing-machines in private houses." It will be seen from this that one great obstacle to the general use of the electric light for forcing purposes is in a fair way of being removed. Now that we have at the Crystal Palace both a school of engineering and a school of horticulture, it is to be hoped that in the coming winter so excellent an opportunity of testing comparatively the effects of the electric light will not be lost. Hitherto the experiments that have been made have not been sufficiently comparative to command universal assent.

—— THLADIANTHA DUBIA.—This is a hardy perennial Chinese Cucurbit, which is easily grown and highly ornamental. It has heart-shaped leaves and bell-shaped golden-yellow blossoms, which are freely produced. At Kew, on one of the walls, it has withstood the past winter, although the ground above its thick, fleshy, underground tubers was not covered in any way. For covering arbours or walls it is well worth growing.

—— WEST INDIAN FRUITS IN THE UNITED STATES.—Recent advices from Jamaica state that information received there from America proves how seriously fruit shipped from Jamaica deteriorates on its voyage to New York. Of Oranges shipped fully one-third perished, and on Bananas the loss amounted to about 21 per cent. Pine-apples were destroyed to the extent of 19 per cent., and Cocoa-nuts 8 per cent. The only remedy for this excessive loss is said to be to export only the finest fruit, and to select a proper stage of maturity for picking.

—— PRODUCTS OF MOGADOR.—It is stated in a recent report that the supplies of Esparto-grass continue to be good, and the exportation was constant during the whole of the past year, 23,777 quintals being exported against 8702 in the previous year. Prices ruled about as usual, and the market in England was fairly remunerative. England and France take by far the greater proportion of the yield of this useful material for paper-making, whilst in Portugal, to which country 1267 bales were shipped, it is used for making ropes, baskets, and other articles. Of gums a fair total quantity was exported, but prices in Mogador were high compared with those of other years. Of the varieties known as gum-arabic, white and brown, Euphorbium (Euphorbia resinifera), and Amrad (?), the quantities were small; but of Sandarac (Callitris quadrivalvis) the supply was good, at a high price, there being a large number of buyers, and prices in England and France ruling high. The principal fruits sold in the Mogador markets are Oranges, Limes, Lemons, Citrons, Dates, Figs, Apricots, Peaches, Pears, Plums, Apples, Melons of several varieties, Grapes, Prickly Pears, Almonds, Pomegranates, and Walnuts. The majority of these fruits come from some little distance, but transport, and consequently market prices, are cheap. The only fruits which are articles of export are Almonds, Dates, and Walnuts. Vegetables are largely grown in the irrigated market gardens just outside the town walls, and they comprise the majority of English varieties, including green Peas (in season in February), Lettuce, Cauliflower, and other plants of which the seed has originally been imported from Europe; also sweet Potatos, Pumpkins, Kohl Rabi, Gourds, &c.

—— ABERDEENSHIRE AGRICULTURAL ASSOCIATION.—We have before us the fifth annual report of this Association, in which the results of the experiments made under its sanction in Aberdeenshire, as well as in two English counties, on Turnips, on grasses, and on Oats, are detailed, with the result, as before, that phosphates of lime decidedly increase the Turnip crop, but that farmers need not trouble themselves to know whether the phosphates are of animal or of mineral origin; that soluble phosphate is not so much superior to insoluble phosphate as supposed; and that the prudence of using nitrogen is rendered doubtful, unless it is followed yearly by judicious application of the mineral constituents of plants. This latter inference, at any rate, is consistent with what we know in other cases, as also are the statements relating to the relative uselessness of the monster roots with which our seedsmen still astonish the gazers at our shows. The weight in these cases is mainly due to increased relative quantities of water, which might be desirable in a Melon or a Cucumber, but which is not required when the product is intended for more substantial use. With reference to the clubbing of Turnips, or that form of it associated with the presence of a peculiar fungus, Mr. JAMIESON, who conducts the experiments, confirms those of Mr. A. S. WILSON, and tells us that farmers have discovered two natural remedies—(1), Removal of conditions favourable to fungoid growth; (2), Extermination of the fungus by withdrawal of its natural food, *i.e.*, by discontinuing the cultivation of Turnips except after long intervals. The fungus was in all cases worst where sulphur, in the form of sulphides or sulphates, was used in the manure. The manures stimulate the plant to precocious growth, and induce consequent weakness, in consequence of which the plants become a ready prey to the fungus. As regards the storing of Turnips, the best results were obtained by pitting them after removing the leaves and roots.

—— ŒNOTHERA LAMARCKIANA.—What a glorious plant this is. It forms a pyramid 3 to 4 feet in height, regularly branched from the base with spreading branches, and an abundance of very large primrose-yellow flowers. It is a perfectly hardy biennial or perennial. Ours is growing in a Rose bed on strong stiff soil, where it came up accidentally from seed; and even among the Roses it holds its own as a magnificent plant.

—— RARE PLANTS IN FLOWER.—The following new and extremely rare plants are now in flower at Mr. WILLIAM BULL'S establishment at Chelsea:—Cienkowskya Kirkii, Disa grandiflora Barrellii, Anthurium Andreanum, Blandfordia flava, Lilium cruentum, Odontoglossum vexillarium Chelsoni, double-flowered Bouvardia "Alfred Neuner," Monolophus secundus.

—— CAMPANULA VIDALI.—This is a beautiful species, with thick white waxy drooping blossoms, which remain longer in good condition than do those of most bell flowers; on looking inside the flower a bright orange ring is seen surrounding the disc at the base. It has not only its beauty to recommend it, but a considerable amount of interest. In his interesting lecture on "Insular Floras," delivered before

FIG. 26.—MASDEVALLIA CHIMÆRA, NAT. SIZE; OUTLINE SKETCH OF HABIT, HALF NAT. SIZE. (SEE P. 112.)

L Reeve & Co. London

Masdevallia ornata Rolfe
var. inflata Veitch
M. inflata Rolfe

Tafel 291.

del. Kränzlin.

Masdevallia calyptrata Krzl.

Vanderae.

7766

M. F. del. J. N. Fitch lith.

L. Reeve & Co. London

Mardevallia deorsum Wolfe tabl. IV

Mard. elephanticeps Rchb. f.

Illustration horticole 1877. xxi. t. 180.

Masdevallia (Trochilus. Linden & André.)
N. Granada.

Taf. 111.

Masdevallia [tovulosa F.C. Lehm.]

F. C. Lehmann del.

Rich. & Gal. Orch. Mexic.
Pl. 3. 1.

Mardevallia Galeottiana A. Rich.

Rich. & Galeotti Orch. Mexic.
Pl. 3. 2.

Mardevallia (Lindeniana Rich & Gal.)

Masdevallia fracti-
flexa, sp. nov.
Lehm. et Kränz.

Flos dissectionis and the name
as printed below
This plate has been cut.

Mardevallia fragrans?

F. C. Lehmann No 316

H. inflata

Mardevallia [illegible]

F. C. Lehmann No 311. [illegible]

Bot. Mag. tab 7245.

Masdevallia leontoglossa. Rchb. f.
Halps. VI. 191.

Masdevallia macrura. Rbth. f.
Gard. chron. 1874 p. 70.
" " " 1877 I. p. 13 c. xylogr.

Bot. Mag. tab. 7164

Masdevallia macrura Rchb. f. Gard Chron.
1874. I. 240. 1877 I. 12 – Linnaea 1877. 11.

Bot. Mag. tab. 7015.

Masdevallia Mooreana. Rchb. f. Gard. Chron. N. S. xxi (1884) I. 408.

H.T.D. del. Hartenbach

L. Reeve & Co. London

Mardevallia muscosa Kdl.

Mardevallia [illegible]
F. C. Lehmann No 277.

pathyanthe Rchb. f.

Bot. Mag. 7185.

Masdevallia platyglossa Rchb. f.
Gard Chron 1882. II. 252.

Bot. Mag 7129.

Masdevallia
[Pleurothallis]
platyrhachis Rolfe
Lond. Chron 1888. II 178.
& Journ. Bot. 1890 p. 196

Masdevallia

F. C. Lehmann № 313.

F. C. Lehmann. Nº 208.

Masdevallia

is only under the influence of the solar rays that it opens its blossoms, which mostly turn south, and remain leaning that way. *J. Sheppard.*

The Alexander Peach.—I can fully endorse all that Mr. Rivers has said in favour of this Peach. It may be of interest to those who may be contemplating planting it, to know that last season I fruited it on the open wall, where it ripened its fruit quite a fortnight earlier than our earliest kinds growing in an unheated Peach-house. This season I have removed my tree into the Peach-house, having, after many trials, reluctantly arrived at the same conclusion as Mr. Rivers—that Peach growing in the open air is almost hopeless. *Chas. Meehan, The Gardens, St. Clare, near Ryde.*

Salvia patens.—This is a very useful, showy, and easily cultivated greenhouse plant; it is also an attractive bedding plant either planted in masses or in mixed beds, but it is as a greenhouse or conservatory plant that I shall now refer to it, and for the embellishment of which, on account of its beautiful soft blue flowers—a colour peculiar to itself—it has few equals. Cuttings put in now singly in 3-inch pots in light sandy soil and placed in a Cucumber or Melon frame will root quickly, and by repeated shiftings into larger pots, as they require more room at the roots, and stopping of the shoots, and plenty of air and water at the roots, when necessary, will make useful flowering plants by the autumn. *H. W. W.*

Cleaning Boilers.—There are many letters in your columns about boilers, but one thing I have not yet seen touched upon, and that is, how to clean them. My boiler is a saddle, and it has only a little hole about three-quarters of an inch in diameter in one of the wings, which is quite insufficient to get dirt out from it, and utterly useless to clean the other wing. Now is not the inefficiency of the boiler often due to the fault of the water, and the way it is put in? Mine used to be fed from a little wooden cistern, into which coal, ashes, and dirt of all sorts got, and from thence into the boiler, and now I fear there is a deposit of mud in it from the dirty water which supplies it, and which comes down from a mill-dam, holding a good deal of clay and mud dissolved in it. Is there any way of putting up a filter to clear the water, and yet allow a strong flow, for other places are supplied from the same source, and how can the boiler be really cleaned out? It is a pity that cleaning holes are not made in them, which, as the pressure is slight, might easily be done. I have no doubt that many boilers are covered with a thick deposit from the water, causing a great loss in firing. *J. R. H.*

Perennial Candytufts.—If the variety alluded to at page 592 as Iberis superba be identical with the kind I have under the designation of Iberis garrexifolia superba, I can well bear testimony to its great value as a spring decorative plant. Taking it for all in all, I think it the best of the genus, for although I. gibraltarica produces the largest trusses of bloom, the flowers are not pure white in the open, and they are not freely produced; the plant is of somewhat irregular habit, and it certainly is not thoroughly hardy. I. garrexifolia superba has, next to I. gibraltarica, the finest trusses, and these are of even purer hue than are those of I. corifolia, and are borne on longer stems, so that the plant is pre-eminently useful to furnish cut flowers. It is robust, of a free spreading habit, and quite hardy. Taken in conjunction with the Cheiranthus Marshalli, so full just now of rich orange flowers, I think these are two of the most effective and valuable of hardy perennials for the present season. *A. D.*

Coccocypselum discolor.—Although this is not a showy stove plant it is nevertheless a useful and somewhat curious one—useful on account of its trailing habit as well as by reason of its easy culture and striking contrast to other plants of similar growth, and curious on account of the deep blue berries which ornament the drooping shoots, which, hanging over the edge of the staging in connection with plants of Panicum variegatum, &c., have a very pleasing effect. The leaves, too, which are ovate and about 1½ inch long, are covered with a down of the same colour as the berries. The plant propagates freely from cuttings, and succeeds under the most ordinary stove treatment. *H. W. W.*

The Salt Storm of April 29.—The storm of Saturday week did sad mischief here. All the early deciduous trees suffered terribly, and many of them are, I fear, injured for the year, as the leading and principal shoots appear quite destroyed at their extremities. No others suffered so much as the Maples, of which I have a considerable collection. I send you specimens of the foliage of Acer saccharinum, A. dasycarpum, and A. platanoides that you may taste the salt still remaining, though they have been washed with frequent rains ever since. The salt completely cauterised the foliage. Some of the evergreens, such as the common Laurel, and still more the Portugal Laurel suffered very much; but none of the Coniferæ, though several of them had put forth a considerable length of young tender shoots. Cedrus atlantica, some early common Spruce, and more especially Picea cephalonica, were covered with soft youthful growth, but they were uninjured. I am about 40 miles from the sea—the nearest point; but the wind did not come from there. It was west by south, and the atmosphere must have crossed North Devon, Somersetshire, Wiltshire, and part of Hampshire before arriving here. Still, the brine of the Atlantic was in it, as my poor trees indicate but too clearly. *James Salter, Basingfield, Basingstoke.*

Bouvardias.—Those who have the convenience of a stove or intermediate-house should not fail to grow a few Bouvardias, as, unquestionably, they are among the most useful winter flowering plants in existence, affording as they do a large amount of choice bloom, which is of great value for cutting and working up in bouquets. To have them of a serviceable size, cuttings should be struck at once, and to obtain these it is necessary to put one or two old plants in strong moist heat, which will soon induce them to break and form side shoots, and these when about 3 inches long are sufficiently advanced for removal. If taken off just below a joint with a sharp knife and the lower leaves carefully removed, they will root as readily as Verbenas, but to get them to do this they must be placed in a propagating-box where they can be kept close and have a brisk temperature, or stood on a shady shelf up near the light in a stove covered with a bell-glass, under which they get the conditions required. As soon as struck—which, if all goes well, will happen in about a month—they should be potted off singly in small pots and returned to the propagating-box, or to a hot-bed frame, where they can have the benefit of a moderately close moist heat for a time to get a fresh start. When fairly on the move they should at once have more air to gradually prepare them for the change of standing out in the open. As the summers are variable, and sometimes wet and cold, it is advisable to prepare a bed for them in a frame, where in case of an adverse change the lights may be put on, and if this is done they may be planted or plunged in the bed by the middle of June. In making up the frame, the foundation should be formed by a foot or so of half rotten leaves, and on these 6 inches of refuse peat or leaf-mould and sharp turfy loam spread, in either of which Bouvardias root readily and grow with great freedom. As they are of thin spare habit a foot apart is quite far enough to plant, and as soon as they get hold the points of the shoots should be nipped out, which will cause them to break and become moderately bushy below. All further attention the plants will require during summer is to be kept syringed or damped overhead on the afternoons of hot days and duly watered whenever they become dry at the roots. If greenfly assail them the easiest remedy is to close the lights and fumigate, or the plants may be syringed with weak tobacco-liquor, which will cleanse them at once. By the end of September the growth will be thoroughly hardened, and it will be time to lift and repot the plants, which should be done in light peaty soil, when it will be necessary to keep them close and warm till they get over the check. If wanted in flower early a few of the most forward may be placed in heat at once, and if kept there after the heads are cut they soon break again and yield a succession of bloom. Bouvardias will flower fairly well in a moderately warm greenhouse, but not nearly so well as they will where they can be subjected to more heat, as there they bloom continuously if assisted by the application of weak liquid-manure. As to sorts the best to grow are Vreelandi, Hogarth, Maiden's Blush, and Oriflamme, unless the doubles now being advertised should turn out more valuable, but of these I have had no experience as yet. Double flowers, however, are generally more lasting, although in this case it is doubtful if the doubleness will add to their beauty as compared with the singles, which are the perfection of lightness and finish. *J. Sheppard.*

Where to Plant Surplus Spring-flowering Plants.—As the time when spring-flowering plants—a few of which are still at their best—will have to make way for the summer occupants of the flower garden is now at hand, may I be allowed to suggest, for the benefit of those of your readers who may have been in the habit of consigning their surplus plants to the rubbish-heap, the planting of them in irregular and alternate patches on the banks on either side the avenues, shrubbery walks, and here and there in suitable situations amongst the trees in frequented places. Thus planted places which heretofore were cheerless in early spring are now, by reason of the masses of blue Forget-me-Nots, Violas, Primroses, Daffodils, white Arabis, Wallflowers, Violets, &c., which meet the eye at every turning in the drives and walks, rendered pleasing and interesting spots of resort, and the air, which is pervaded with the fragrance of those ever popular flowers—Wallflowers and Violets—more pleasant to breathe. There are not a few unattractive spots in many places adjoining the carriage drives through the park, woods, and other frequented places which might, in the way above suggested, be beautified at a trifling labour expense. *Hortus.*

The Mimulus.—The superb forms of Mimulus maculosus which Mr. Clapham has created by long selection and careful hybridisation, in addition to their almost gorgeous beauty, are truly very hardy. I put out a large number of strong plants as early as the first week in April, and they are blooming very profusely. From one seedling plant I gathered flowers exactly 3 inches across, and perfectly round. I think those were the finest I have yet seen. On soil that is fairly good and light, yet cool, the Mimulus will grow almost luxuriantly, and produce a fine effect. The object of the grower should be to get up a good growth of side shoots, and to effect this it is well to stop the main or centre growth early. Plants will do remarkably well in the autumn, blooming late and luxuriating in the cool moist weather which then prevails. *A. D.*

Insects.—When Shakspeare penned those trite and true words, "The worst of creatures fastest propagate," he must, one would think, have known something of gardeners' troubles, and of the insects with which they have to contend, for truly the rate of increase of some of these is marvellous, and where they spring from, or how many of them originate, is a mystery. Take red-spiders, for instance, the most minute of the lot, and the puzzle is how such pests get into a quite new house freshly planted with Vines or Peaches, and yet, if the conditions are favourable, hosts of them soon come into existence and spread with the greatest rapidity. Bad as red spiders are, however, they are quite outdone by greenfly, which breed so fast as to almost outrun all calculation, and if one or two only appear on a plant, their progeny, and those issuing from them, are soon all over the leaves, sucking out the juices and curling them up. What they have a special liking for just now are Roses and Peaches, which both show unmistakable signs that the enemy is at work, for, look where one will, crippled shoots are to be seen, and if these are not liberated and set going at once, they will be a long time in getting over the check. Tobacco-dust, though highly dangerous to leave on for any lengthened period, is an excellent remedy against aphis, as with a distributor, which may be carried in the pocket while disbudding is going on, a puff may be given to any shoot affected, and the progress and breeding of the insects at once stopped. The best time, however, to apply the tobacco-powder is early in the morning, while the trees or bushes are moist with dew, as then it adheres readily, and as it at once acts on the fly, and causes them to leave their hold, they may easily be washed off by means of water from a garden engine or syringe. By looking over Peaches and Nectarines occasionally and treating them in the way referred to, they may be kept clean without having recourse to Gishurst or other insecticides of a similar nature, none of which can be used while the fruit is in such a small tender state without much risk of injury to the delicate skin. To make short work of greenfly on Roses and cleanse the plants of their presence, there is nothing I am acquainted with equal to nicotine soap, which has the active properties of Tobacco in it, and by diluting it to the proper strength it may be syringed on, or the long shoots bent down and dipped in without causing much waste. Quassia chips boiled with some soft-soap in the water forms a good and cheap insecticide, and if a little tobacco-juice or nicotine is added fly quickly vanish under its influence. The only way of dealing effectually with the Rose-maggot, so snugly ensconced in the leaves it so dexterously curls, is to give each a loving squeeze between the finger and thumb, which may be done without bruising or harming the young tender foliage, as the grub is soft and collapses under the gentlest of pressure. The Gooseberry caterpillar, so prevalent in some gardens, may be got rid of by the use of lime, which should be sown thickly on the ground under the bushes, as there the larvæ lie and hatch and issue forth as soon as the weather gets warm. Currants, so subject to greenfly, which affect the tips of the young branches, are best managed by nipping the points out, as the aphis cannot exist on the old hardened leaves, the tissues of which are too tough for them to get the sap through. The worst of all the aphis family are the black, which usually affect Cherries, and the only way of destroying them without harming the shoots is to use a strong solution of nicotine soap and immerse them all in. The liquid at once penetrates their oily coating, and by its quick action seems to dissolve them. The aphis peculiar to Plums are almost as difficult to kill, and the best way of battling with these and the black on dessert Cherries is to remove the young shoots early by timely stopping, as by doing this they may in many cases be kept away altogether. As to red-spider, the best

remedy where they affect trees on open walls is cold water, drenchings of which from a garden engine they cannot endure. Dryness at the root is a frequent cause of these parasites affecting Peaches, to prevent which it is a good plan to mulch all trees with half-rotten manure, and this should be done early, so as to keep the moisture in and maintain the soil in an equable condition of warmth. By-and-bye, when the fruit is swelling fast, an occasional soaking of sewage will do much towards keeping the trees in vigorous health, and will also assist them greatly in carrying their load. *J. Sheppard.*

Reports of Societies.

Royal Horticultural: *May* 9.—James McIntosh, Esq., in the chair. The Rev. G. Henslow took Maples as the subject of his lecture, as Messrs. Veitch exhibited a fine series of new forms from Japan, remarkable for their coloured and variously dissected foliage. He first called attention to the fact that Maples abounded in the Miocene epoch, nineteen species having been found fossil at Œningen near Lake Constance. They were even attacked by a fungoid disease much resembling the Rhytisma acerinum, which forms black spots on the Sycamore. Maples were well known to the ancients for the value of their wood. Theophrastus, Virgil, and Ovid often alluded to the markings on the wood, for which it was prized, as it is now. Maples are found in Europe, North America, North India, and Japan. Of the European, the common Maple (Acer campestre, L.) is a well-known British shrub or small tree, the wood of which is valuable for cabinet work, and makes one of the best charcoals. A. Pseudo-Platanus, L., the Sycamore, has also valuable timber, while the knotted roots are used for inlaying, &c. The sap has been made into sugar and wine in the Western Highlands of Scotland. Of American species, A. saccharinum, L., the Rock-sugar or Bird's-eye Maple, is one of the most important. It was introduced here in 1735. The timber is valuable, and used instead of Oak when the latter is scarce. The fibres sometimes show peculiar arrangements, being undulated like that of the "curled Maple" (A. rubrum L., the red flowering Maple), or in spots, which gives the name of Bird's-eye. It forms excellent fuel and the ashes are rich in potash. Sugar is extracted from the sap by boiling, the flow of sap being peculiarly sensitive to climatic conditions (see a paper by Mr. Maw in the *Gardeners' Chronicle*, 1878, p. 137). Of the Japanese Maples lately introduced by Mr. Veitch, Acer palmatum, or polymorphum, is the most important, as being remarkable for the great variety in the forms and colour of the leaves. It was originally introduced in 1822, but for the beautiful and delicately cut-leaved new forms we are indebted to Mr. J. G. Veitch and Mr. C. Maries. Their names, Ampelopsifolium, atropurpureum, dissectum, &c., will describe their different peculiarities. Another species—A. distylum—as well as A. carpinifolium, both from Japan, are curious for the leaves being without lobes, the usual number varying from three to seven. As the first leaves developed on seedling plants (*e.g.*, Sycamore) are without lobes, it represents a primitive condition, while the five or seven lobes obtained by later developed leaves, and characteristic of many species, would seem to be later developed forms—the three-lobed Acer trilobatum having been particularly characteristic of the Miocene epoch. Several other beautiful and interesting forms were exhibited by Messrs. Veitch, which were introduced by them, some not yet having distinctive names. He also exhibited some curious specimens of Japanese grafting, several varieties having been grafted on the same stem.

SCIENTIFIC COMMITTEE.—Sir J. D. Hooker in the chair.

Larch Disease.—A letter was read from Mr. Clutton with reference to the statements made at a previous meeting by Mr. McLachlan, and stating that there was no doubt but that the insects really were effecting great injury by stripping the shoots of the leaves.

Rhododendrons.—Mr. Mangles showed cut blooms of several species and varieties of Rhododendron, and commented upon their characteristics. Among the specimens exhibited by Mr. Mangles were:—1. One of the hybrids originally raised by Dean Herbert between Azalea viscosa, as the pollen parent, and R. maximum, and called R. bigener. 2. R. nilagiricum, true—a scarlet flowered variety, from the Nilghiri hills, and which occurs in Ceylon and other parts of India under various names. 3. R. nilagiricum of gardens, a large, pale rose-coloured variety, misnamed, as it is not a native of the Nilghiris but of Nepal, being, in fact, R. Campbellæ. 4. R. Fortunei, a species discovered by Fortune on the mountains of the province of Chekiang, at a height of about 3000 feet (see *Gardeners' Chronicle*, 1859, p. 868; *Botanical Magazine*, t. 5596). "The discovery," says Mr. Fortune, "was most unexpected, for . . . no Rhododendron had previously been known to exist in this part of China." The foliage is bold, the leaves oblong, heart-shaped, cuspidate, white on the under-surface; the flowers are borne in a somewhat pyramidal truss, the individual flowers being large, widely campanulate, pale rosy-lilac, nearly regular, and with stamens of nearly equal length. The parts of the flower are in sevens. The flower recalls that of R. Aucklandi, but is abundantly distinct. 5. R. calophyllum, from Bootan, with bold oblong lanceolate leaves, glaucous on the under-surface, and large funnel-shaped white flowers. 6. R. Edgworthii, with its rugose leaves covered with brown pubescence beneath. 7. R. Thomsoni, with its deep red flowers, in this instance quite free from spots. 8. R. californicum, a species remarkable from its habitat, in the extreme Western States of the Union, and quite different from anything on the opposite side of the continent. The species is hardy here, and has pyramidal trusses of medium-sized rosy-lilac flowers, not unlike those of R. ponticum in form. 9. R. Blandfordiæflorum, a very remarkable Malayan species, with tubular orange flowers, tipped with yellow. (See *Gard. Chron.* 1856, p. 548.) 10. R. Roylei, a species with reddish tubular flowers, somewhat like those of R. Thomsoni, but different.

Reversed Mushroom.—Mr. W. G. Smith showed a Mushroom (from Mr. Clarke, The Gardens, Shadwell Court, Thetford) with a second in a reversed position on the top of the cap of the first, as has been figured in our columns on other occasions.

Fungus in Dilute Sulphuric Acid.—Mr. Smith alluded to the presence in large quantities of a fungous mould in dilute sulphuric acid, tinted with cochineal. The fungus when cultivated in syrup developed first into the "vinegar plant," and ultimately into Penicillium crustaceum.

Effect of the Late Gale on Leaves.—Dr. Masters exhibited specimens of leaves of various trees, to show the different manner in which they were affected in consequence of their varying modes of growth.

Germination of Seeds.—An interesting communination on this subject from Mr. Anderson-Henry was read, of which we hope to give the substance on another occasion.

Plants, &c., Exhibited.—Rev. H. Harpur-Crewe showed flowers of Muscari armeniacum, the white variety of the Persian Lilac, which is very rarely met with; also of Pæonia Witmanniana, a native of the Caucasus, with flowers of a pale sulphur-yellow, and leaves puberulous on the under surface. Mr. G. F. Wilson showed a trowel of a particular shape, useful for dividing plants with as little injury to the roots as possible. As we shall probably give an illustration of this we defer further comment. From Mr. Boscawen came flowers of Papaver umbrosum, and from Mr. George, a flowering specimen of a hybrid between an Ivy-leaved Pelargonium (P. peltatum) and P. zonale.

FIG. 101.—MASDEVALLIA ROSEA. (SEE PP. 628, 646.)

FLORAL COMMITTEE.—The Rev. H. Harpur-Crewe in the chair. The principal new plants shown on this occasion were Pratia angulata, a New Zealand trailing plant, with minute rhomb-shaped irregularly toothed leaves, and relatively large white Lobelia-like flowers: it is a charming plant for carpeting on the rockwork; Azalea pontica altaclerensis, a variety with deep fiery orange-coloured blossoms; Eurybia Gunni, a Tasmanian shrub, with small, hoary, oblong, coarsely toothed leaves, and white starry flower-heads, each about an inch across, and freely produced at the ends of the branches; Astilbe Thunbergi, a Japanese under-shrub with unequally pinnate or bi-pinnate leaves, the segments broad, yellowish-green, and sharply toothed; the small white flowers are very numerous, and borne in erect much branched pyramidal panicles, the flower-stalks being of a reddish colour and slightly downy. Azalea rubiflora florepleno, a species with soft pilose leaves, like those of Azalea mollis, and large double pinkish-lilac flowers, the petals being slightly spotted. Cypripedium microchilum had white flowers, the sepals marked with a central purple stripe on the inner surface; the lip is

Orig. Zeichn. Kgl. Herb. z. Berlin

Masdevallia Schlimii. Lindl
Merida. fl. Febr.
Crescit ad Arumeos caespitosa
in Cinchonetis pr. Tasé.
Herbar. Merid. N° 426.

F. C. Lehmann No. 216

Masdevallia simula Rchb. f.

Marks Spruce Rf.

Masdevallia torta. ~~Hbk~~ Bchb. fil.

Pl. 180.

Masdevallia Trochilus.

Vaginae basilares scariosae scissae folia Masd. Lindeni subsimilia, crassa, lineari-obovata. 20 cm long. 4 cm. lata, obtusa, apice emarginata mucronat. decurv. 3 nerv. in petiolum canaliculat. attenuata. bracteae 2 breves amplexantes truncato-acutae; scapus erectus. 0,30-0,40 cm longus. teres. pedunc. elongat 1-flor. perianthii tubus brevis. sepal. 2 infer. conjugata, postice sacciform. bruneo-violacea punctata in caudicula filiformi 4-5 cm longa lutea abrupte attenuata. superius erectus 6-7 cm. long. luteus lineari-acut. petala gynostemium?

Nova. Granata. Roezl. 1872.

F. C. Lehmann. No. 203.

Mardevallia. ventricularia

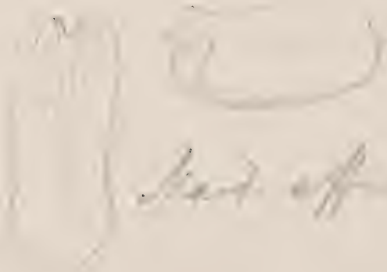
Masdevallia ventricularia Rchb. f.
var. *brevicaudata* Kränzl.
F. C. Lehmann. Nº

Mard. Wagnerana

Mardo flexibilis

Mard. fenestrata.

Mard. laevis



Mard. aff

343

flavcola?

344.

Mardevallia F.
J. C. Lehmann No. 214
Blüte blassgelb.

345.

Chirita